

FIGURE 1

	Uncoupled - <i>Desired</i>			Decoupled - <i>Acceptable</i>			Coupled - <i>Undesired</i>		
	DP1	DP2	DP3	DP1	DP2	DP3	DP1	DP2	DP3
FR1	X	O	O	X	O	O	X	X	X
FR2	O	X	O	X	X	O	X	X	X
FR3	O	O	X	X	X	X	X	X	X

FIGURE 2

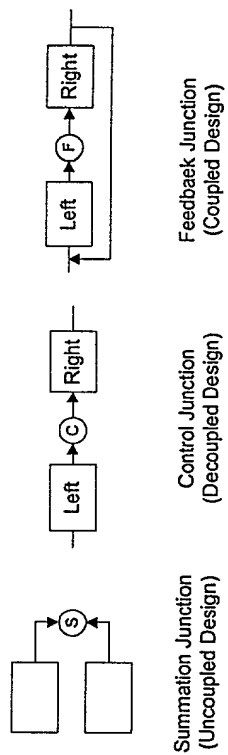


FIGURE 3



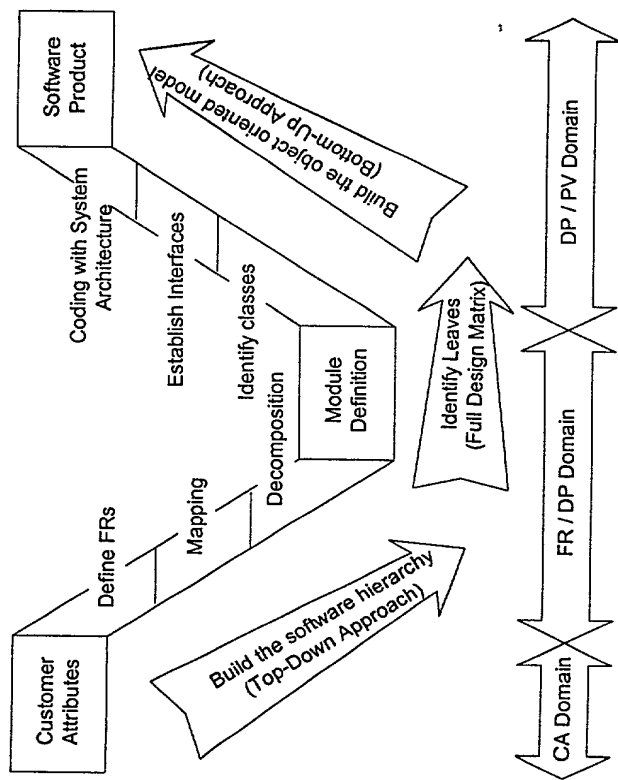
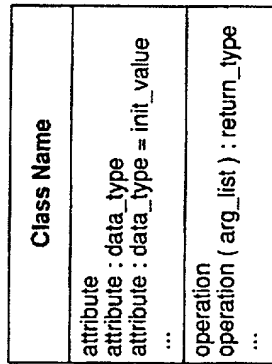
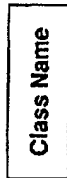


FIGURE 5

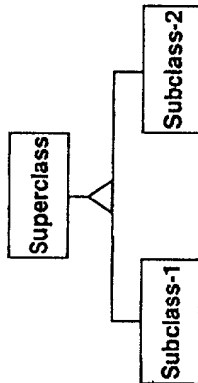
Object (= FR)
Attributes/ Data Structure (= DP)
Method (FRi = Aji DPi)

FIGURE 6

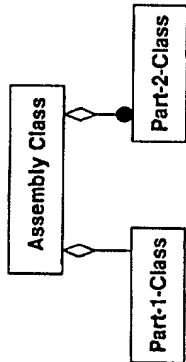
**Class:**



**Generalization (Inheritance):**



**Aggregation:**



**Association:**



**Multiplicity of Associations:**

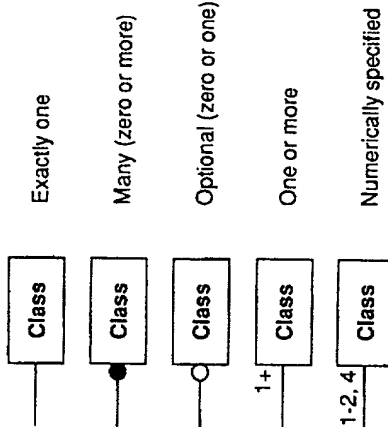


FIGURE 7

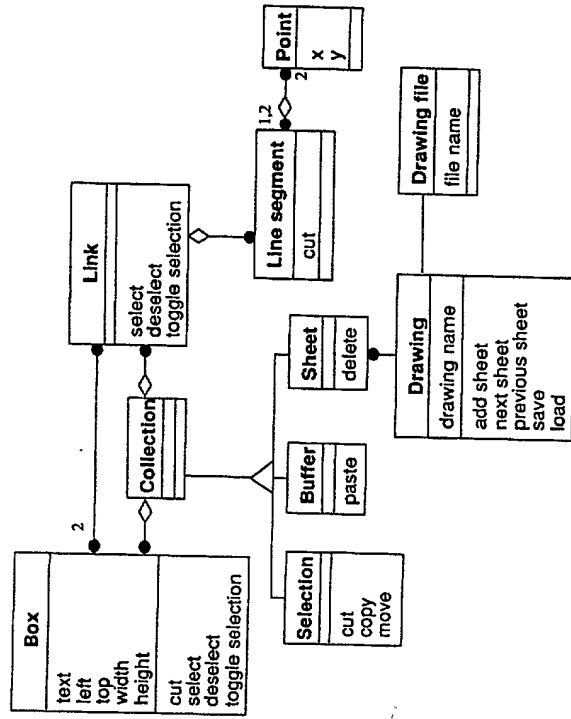


FIGURE 8

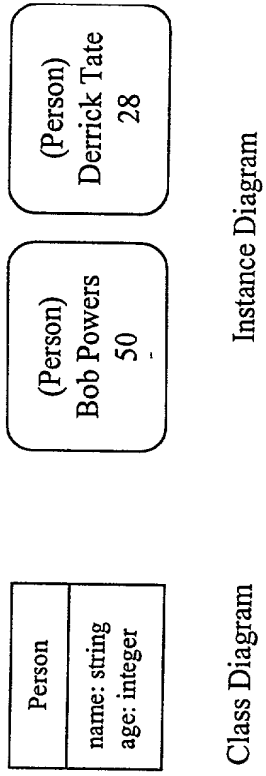


FIGURE 9

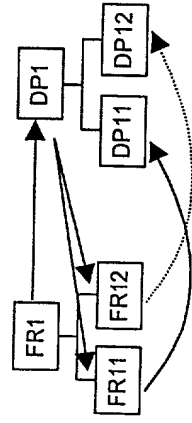


FIGURE 10



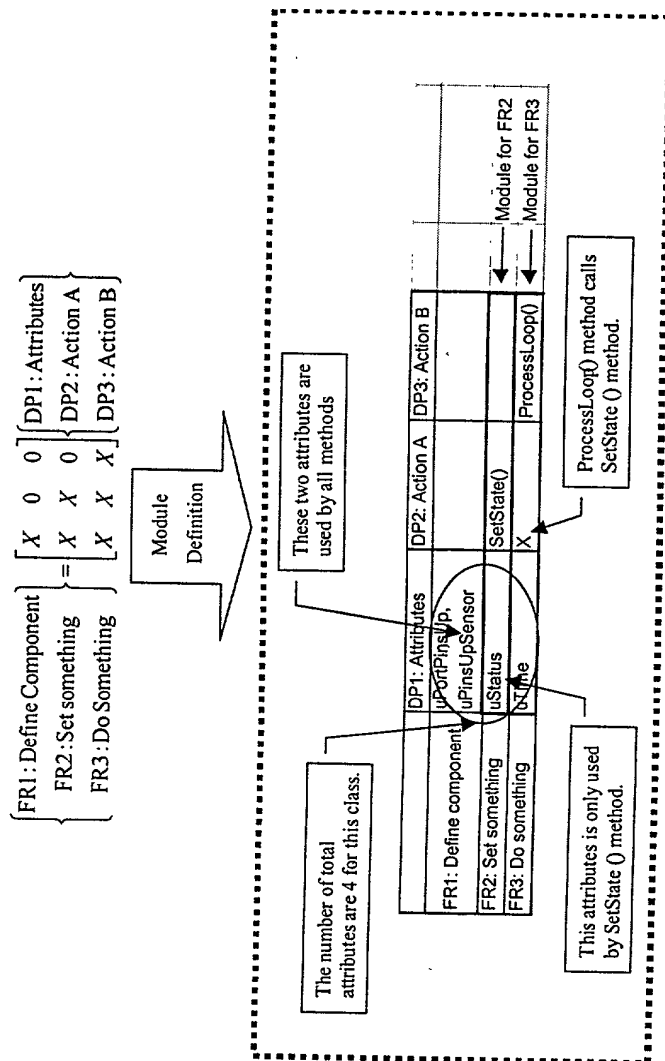


FIGURE 12

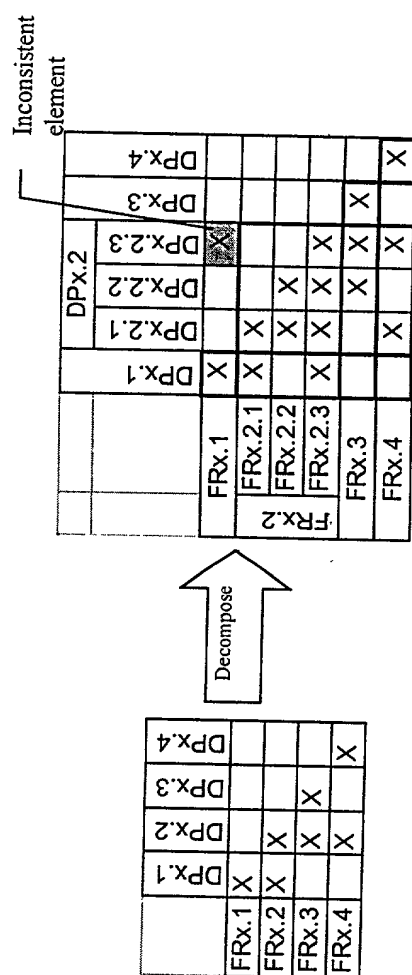


FIGURE 13

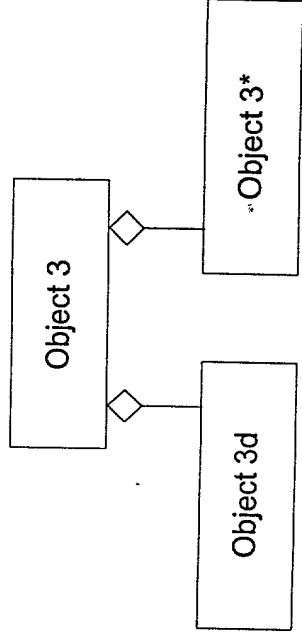
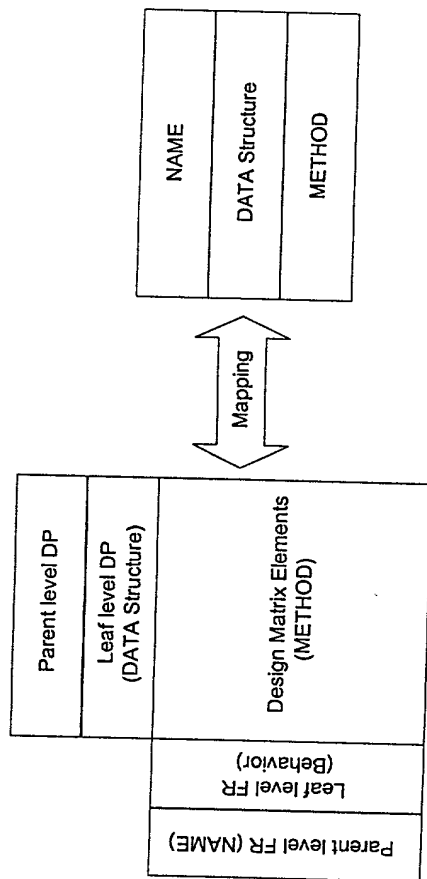


FIGURE 14



(a) Full Design Matrix Table

(b) Class Diagram

FIGURE 15

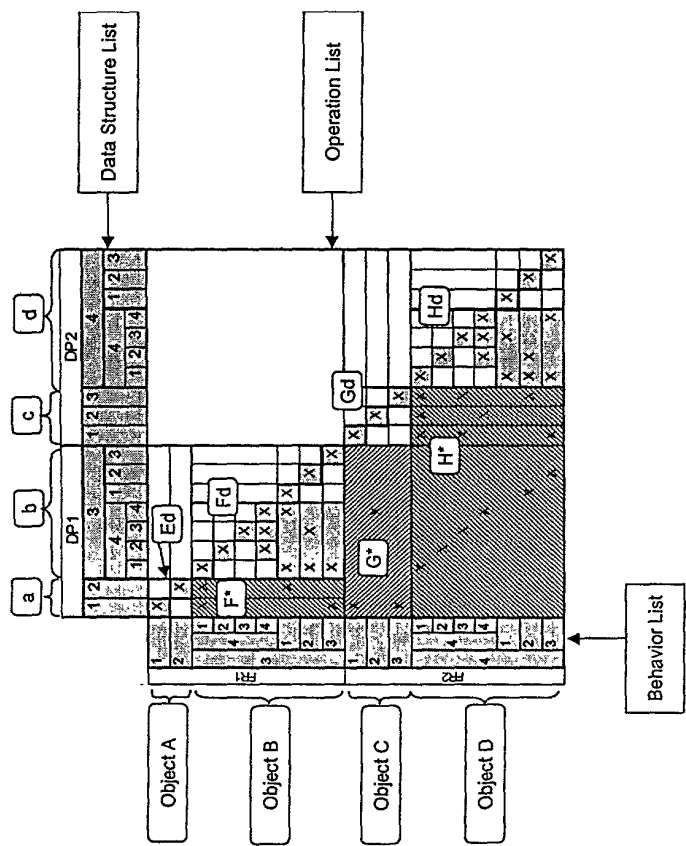


FIGURE 16

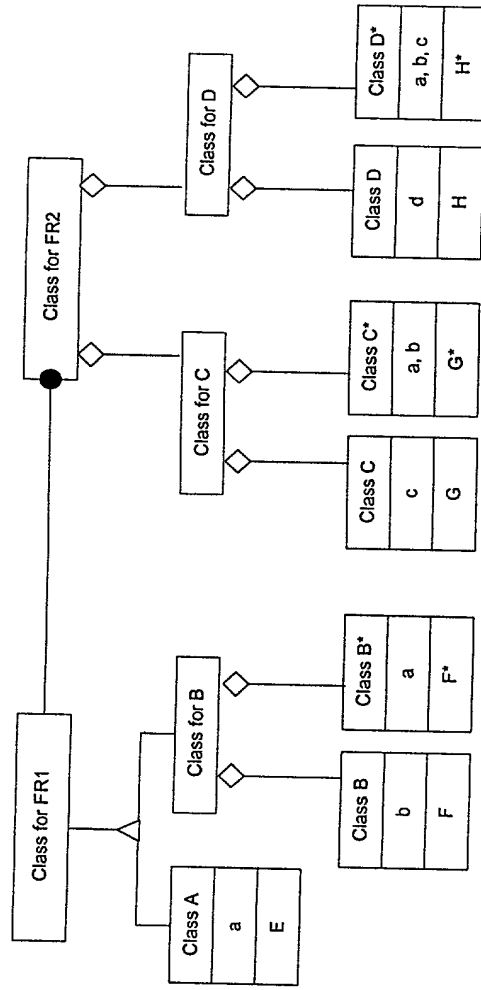


FIGURE 17

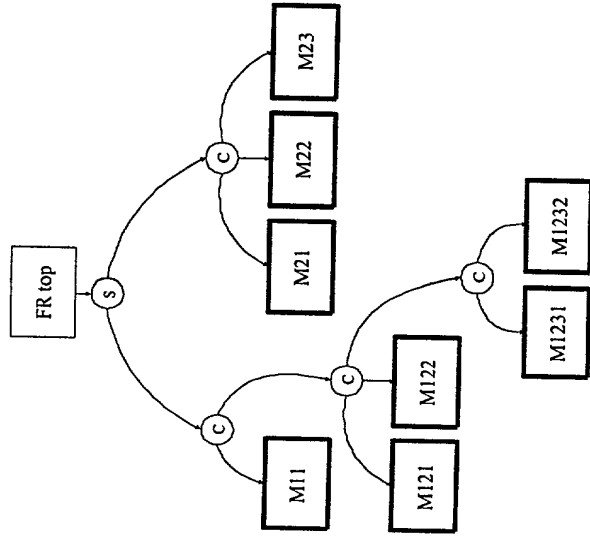


FIGURE 18



The diagram illustrates the structure of a design database, organized into three main functional areas:

- Design Identification:** This section includes entities like **DESIGN\_SET** (with attributes: design\_code, keyword, description), **REVISION** (with attributes: revision\_code, description), and **History** (with attribute: date). A **Hierarchy** relationship connects these entities.
- Detailed Design Descriptions:** This section includes entities like **DOMAIN** (with attributes: number, parent, code, keyword, comment, description), **FR** (with attributes: category, leaf, verification), **DM** (with attributes: value, comment), and **CONSTRAINT** (with attributes: estimated\_value, actual\_value). Relationships include **ISA** (Instance of) and **EFFECT**.
- Source Code Information:** This section includes entities like **FILE** (with attributes: name, description), **OPERATION** (with attribute: method), and **VARIABLE** (with attribute: attribute). Relationships include **ISA** and **ATTRIBUTE**.

**Legend:** primary key

FIGURE 20

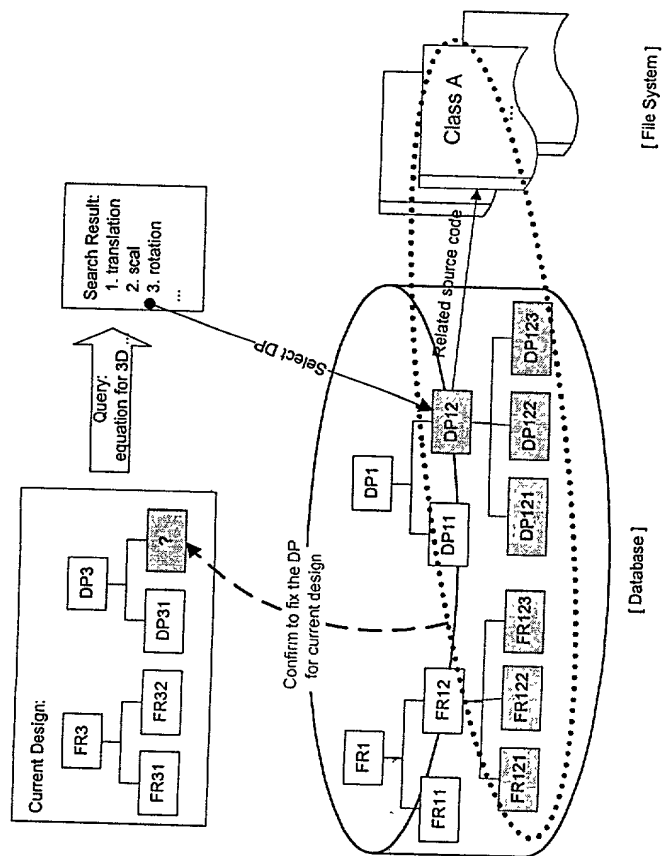


FIGURE 21

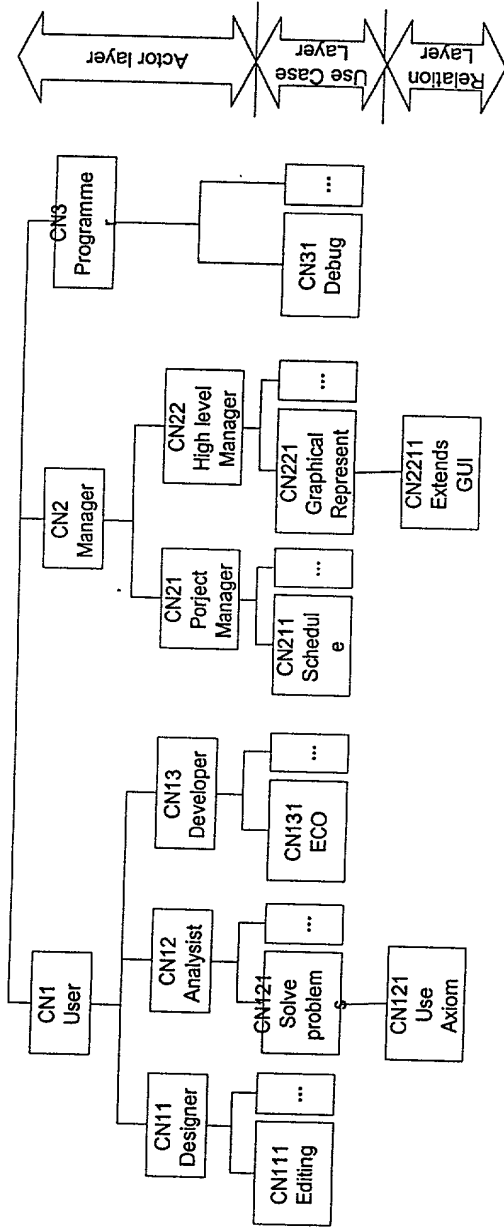


FIGURE 22

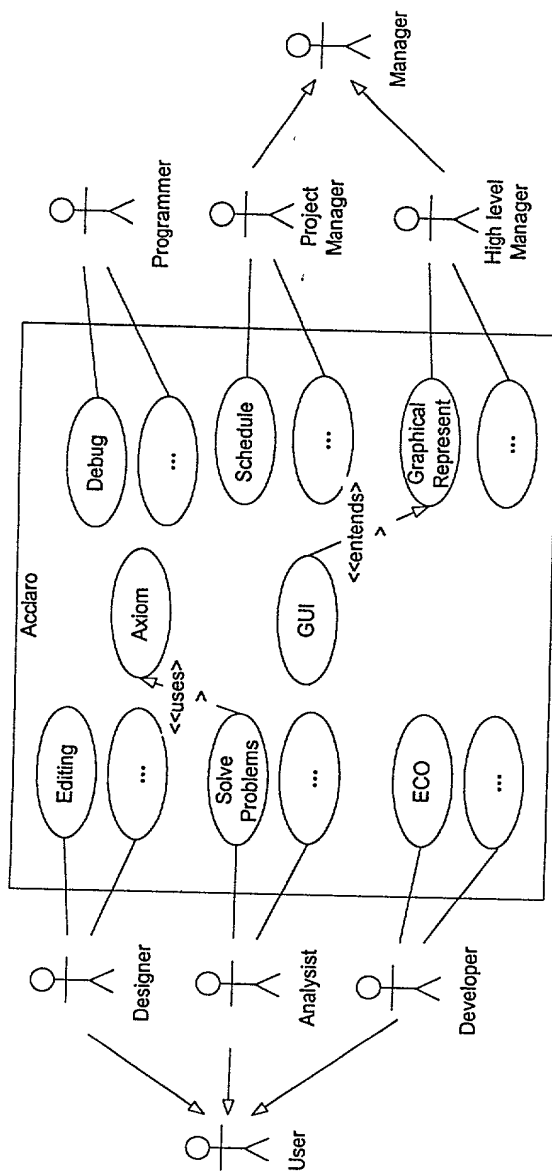


FIGURE 23

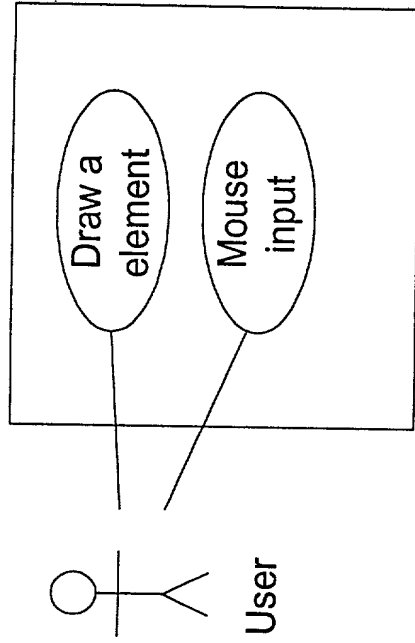


FIGURE 24



On-diagonal element for the intermediate or higher level	
Off-diagonal element for the intermediate or higher level	
Off-diagonal element for the leaf or lower level	

FR1: Define element		FR2: Specify drawing	
FR11: Define line element	FR111: Define start	FR21: Identify the drawing type	FR221: Detect mouse push
FR12: Define rectangle element	FR112: Define end	FR212: Identify rectangle	FR222: Detect mouse release
FR13: Define circle element	FR121: Define upper left corner	FR213: Identify circle	FR23: Draw the element
	FR122: Define lower right corner		
	FR131: Define center		
	FR132: Define radius		
	FR211: Identify line		
	FR212: Identify rectangle		
	FR213: Identify circle		
	FR221: Detect mouse push		
	FR222: Detect mouse release		

DP1: Element characteristics		DP2: GUI with window											
DP11: Line characteristic	DP12: Rectangle characteristic	DP13: Circle characteristic	DP21: Radio buttons			DP22: Mouse click information		DP23: Drawing area					
			DP211: Line button	DP212: Rectangle button	DP213: Circle button	DP221: Event for push	DP222: Event for release						
DP111: Start point	DP112: End point	DP121: Upper left point	DP122: Lower right point	DP131: Center point	DP132: Radius	DP211: Line button	DP212: Rectangle button	DP213: Circle button	DP221: Event for push	DP222: Event for release	DP23: Drawing area		

FIGURE 26

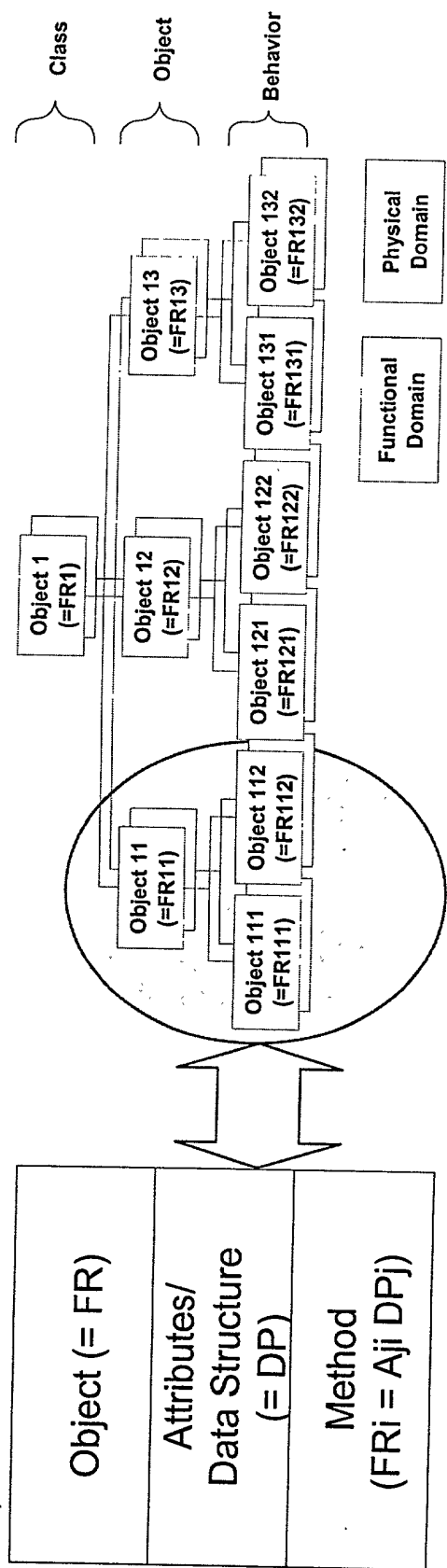


FIGURE 27

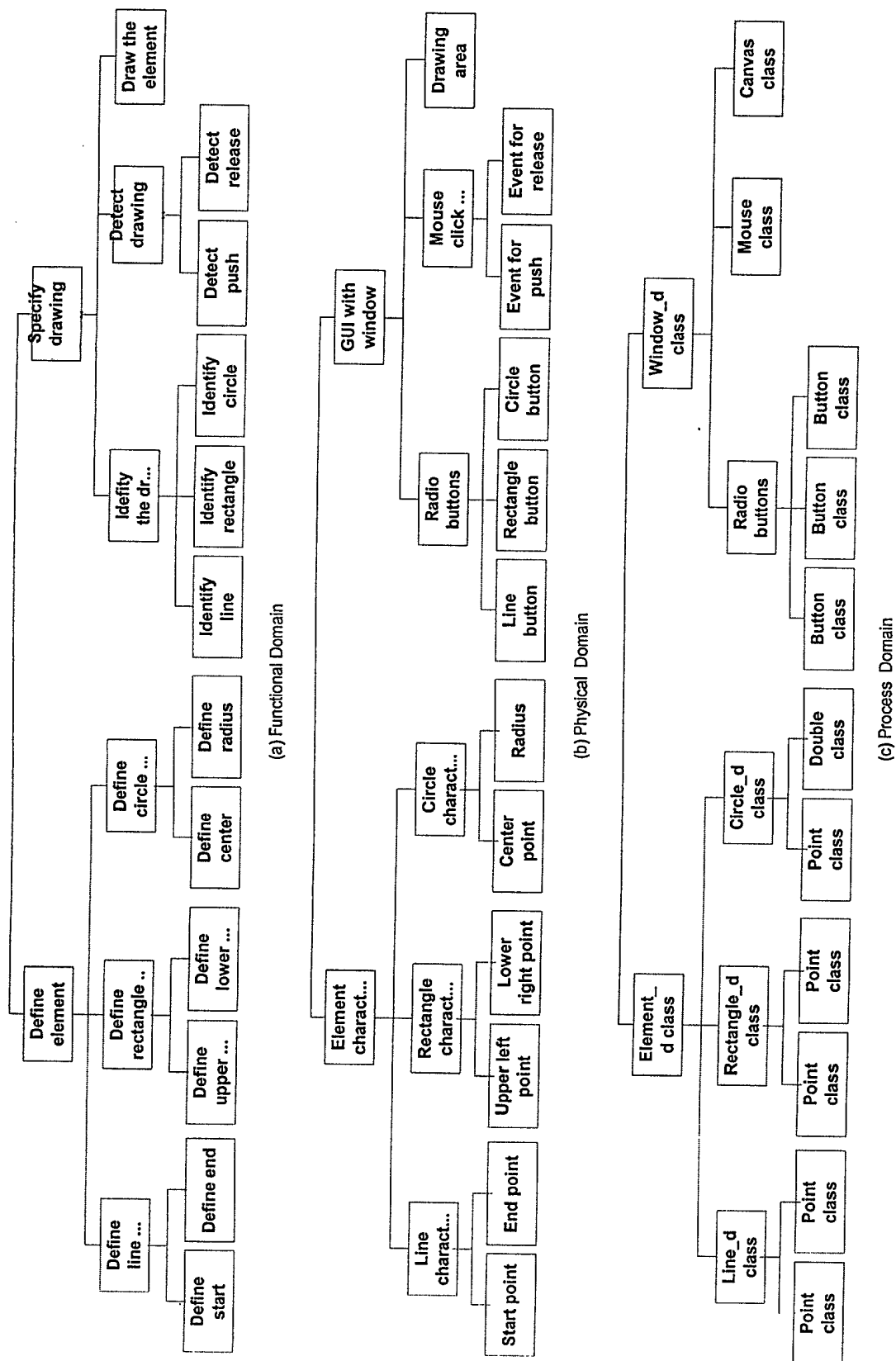


FIGURE 28

			DP1: Element characteristics						DP2: GUI with window					
			DP11: Line characteristics		DP12: Rectangle characteristic		DP13: Circle characteristic		DP21: Radio buttons			DP22: Mouse click information		
			DP111: Start point	DP112: End point	DP121: Upper left point	DP122: Lower right point	DP131: Center point	DP132: Radius	DP211: Line button	DP212: Rectangle button	DP213: Circle button	DP221: Event for push	DP222: Event for release	DP23: Drawing area
FR1: Define element	FR11: Define line element	FR111: Define start	I:setStart()		C:LineConstructor									
		FR112: Define end		J:setEnd()										
	FR12: Define rectangle element	FR121: Define upper left corner			K:setULCorner()									
		FR122: Define lower right corner				L:setRLCorner()								
	FR13: Define circle element	FR131: Define center					M:setCenter()							
		FR132: Define radius						N:setRadius()						
FR2: Specify drawing environment	FR21: Identify the drawing type	FR211: Identify line							O:addLine()					
		FR212: Identify rectangle								P:addRectangle()				
		FR213: Identify circle									Q:addCircle()			
	FR22: Detect drawing location	FR221: Detect mouse push	Message call to I		Message call to K		Message call to M		IsLineSelected()	IsRectangleSelected()	IsCircleSelected()	R:mousePressed()		
		FR222: Detect mouse release		Message call to J		Message call to L		Message call to N	IsLineSelected()	IsRectangleSelected()	IsCircleSelected()		S:mouseReleased()	
	FR23: Draw the element		getStart()	getEnd()	getULCorner()	getRLCorner()	getCenter()	getRadius()	IsLineSelected()	IsRectangleSelected()	IsCircleSelected()			H:update()
				a: * constructor				c: * constructor						

FIGURE 29



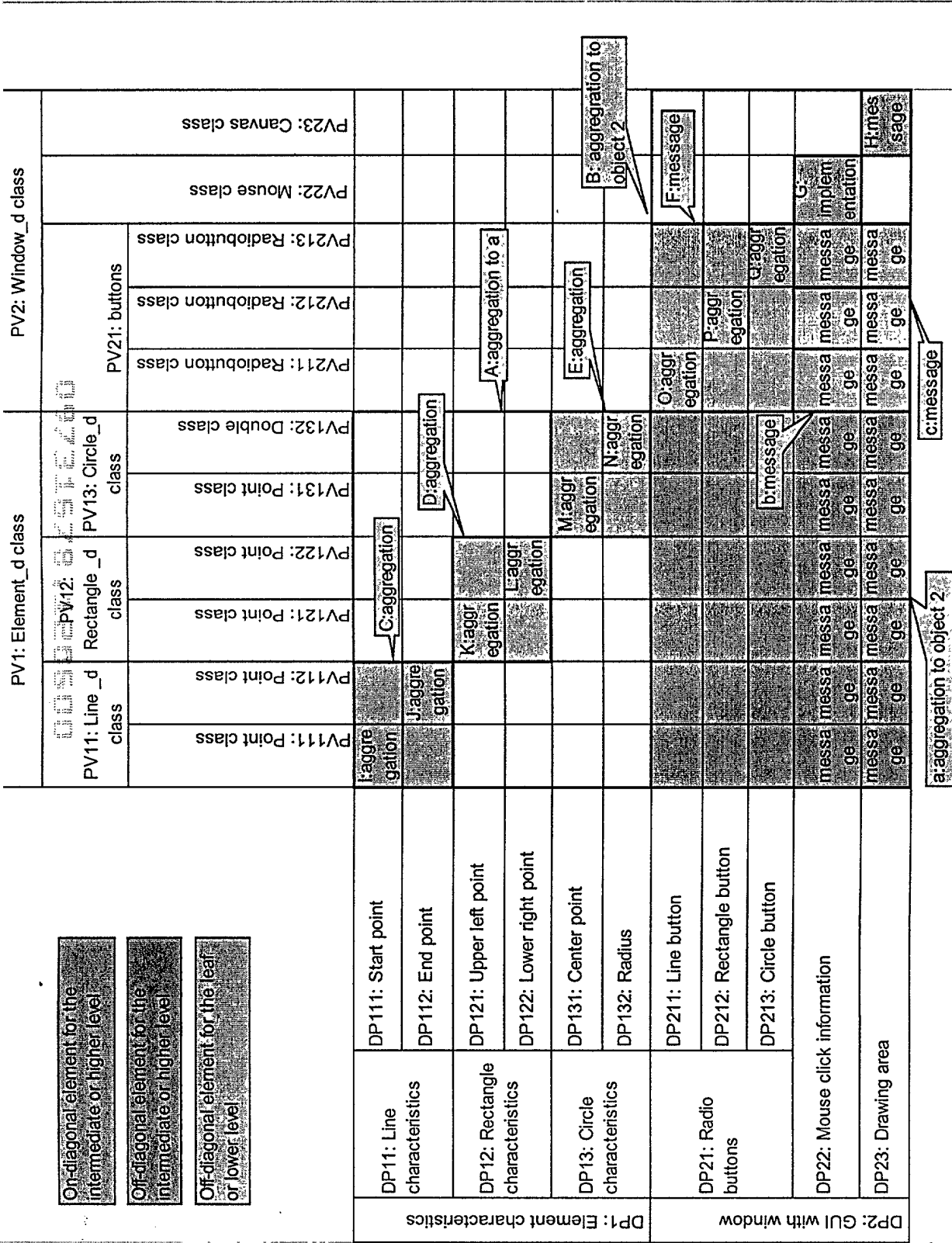


FIGURE 31

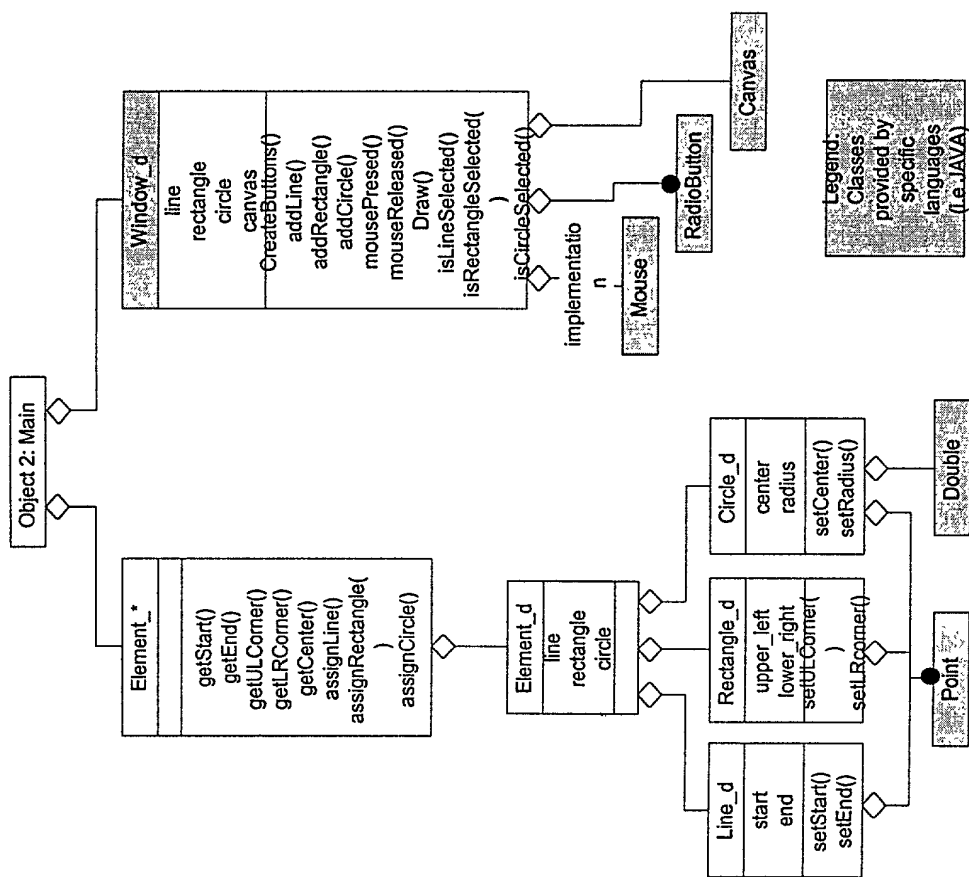


FIGURE 32

DP1 Element characteristics			DP2 GUI with window			
FR11 Line characteristics	DP12 Rectangle characteristics	DP13 Circle characteristics	DP21 Ratio buttons	DP22 Mouse click information	DP23 Drawing area	
FR111 Define start	DP111 Start point	DP121 Upper left point	DP211 Line button	DP221 Event for push	DP231 Drawing area	
FR112 Define end	DP112 End point	DP122 Lower right point	DP212 Rectangle button	DP222 Event for release		
FR121 Define upper left corner	DP121 Upper left point	DP131 Center point	DP213 Circle button			
FR122 Define lower right corner	DP122 Lower right point	DP132 Radius				
FR131 Define center	DP131 Center point					
FR132 Define radius	DP132 Radius					
FR211 Identify line	DP211 Line button					
FR212 Identify rectangle	DP212 Rectangle button					
FR213 Identify circle	DP213 Circle button					
FR221 Detect mouse push	DP221 Event for push					
FR222 Detect mouse release	DP222 Event for release					
FR23 Draw the element	DP231 Drawing area					

FIGURE 33

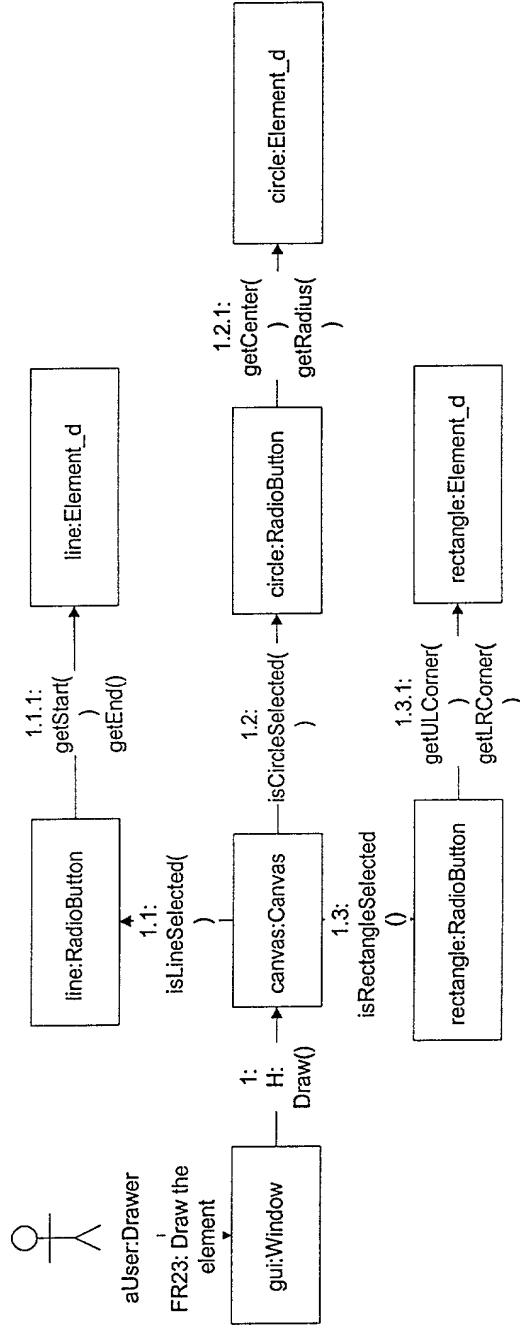


FIGURE 34

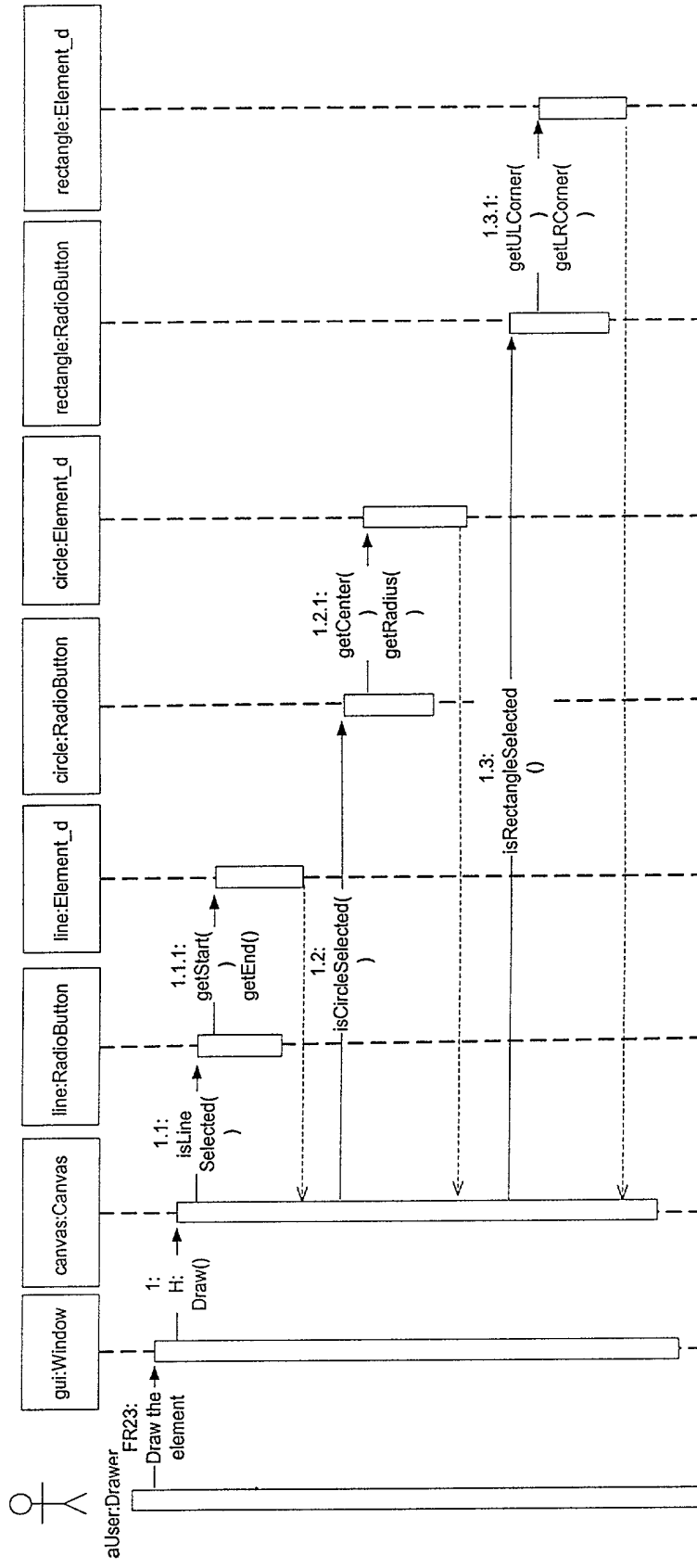


FIGURE 35

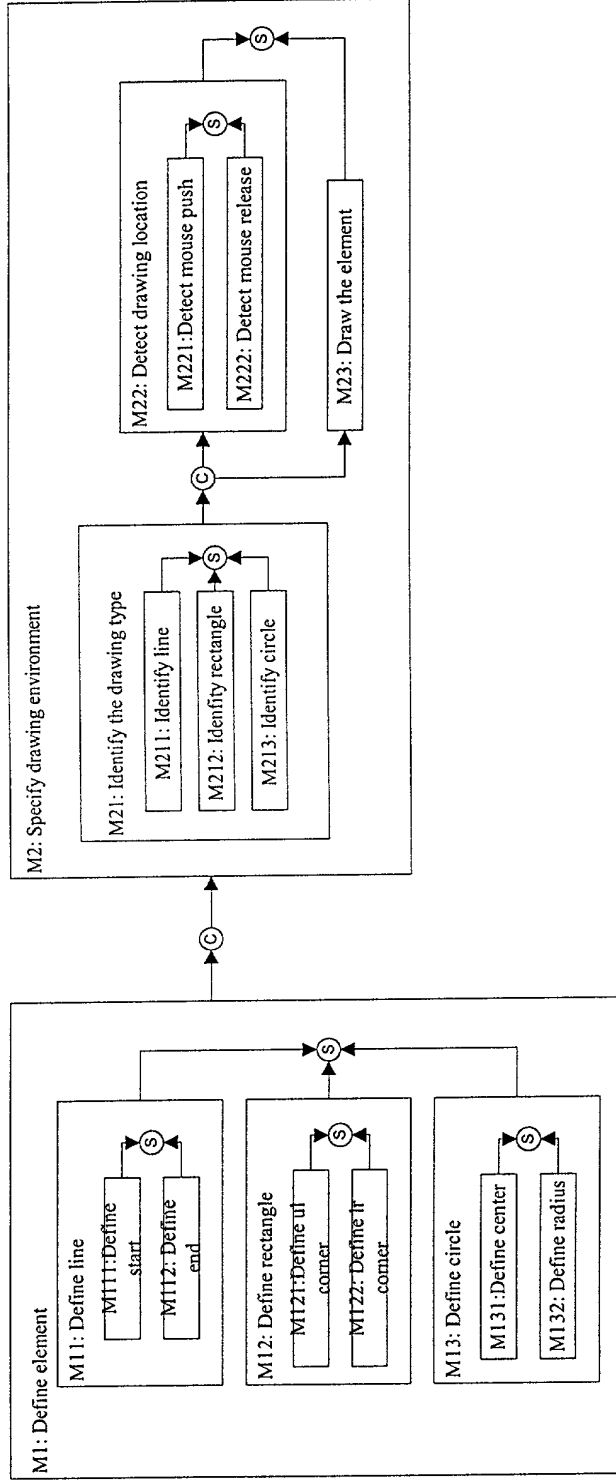


FIGURE 36

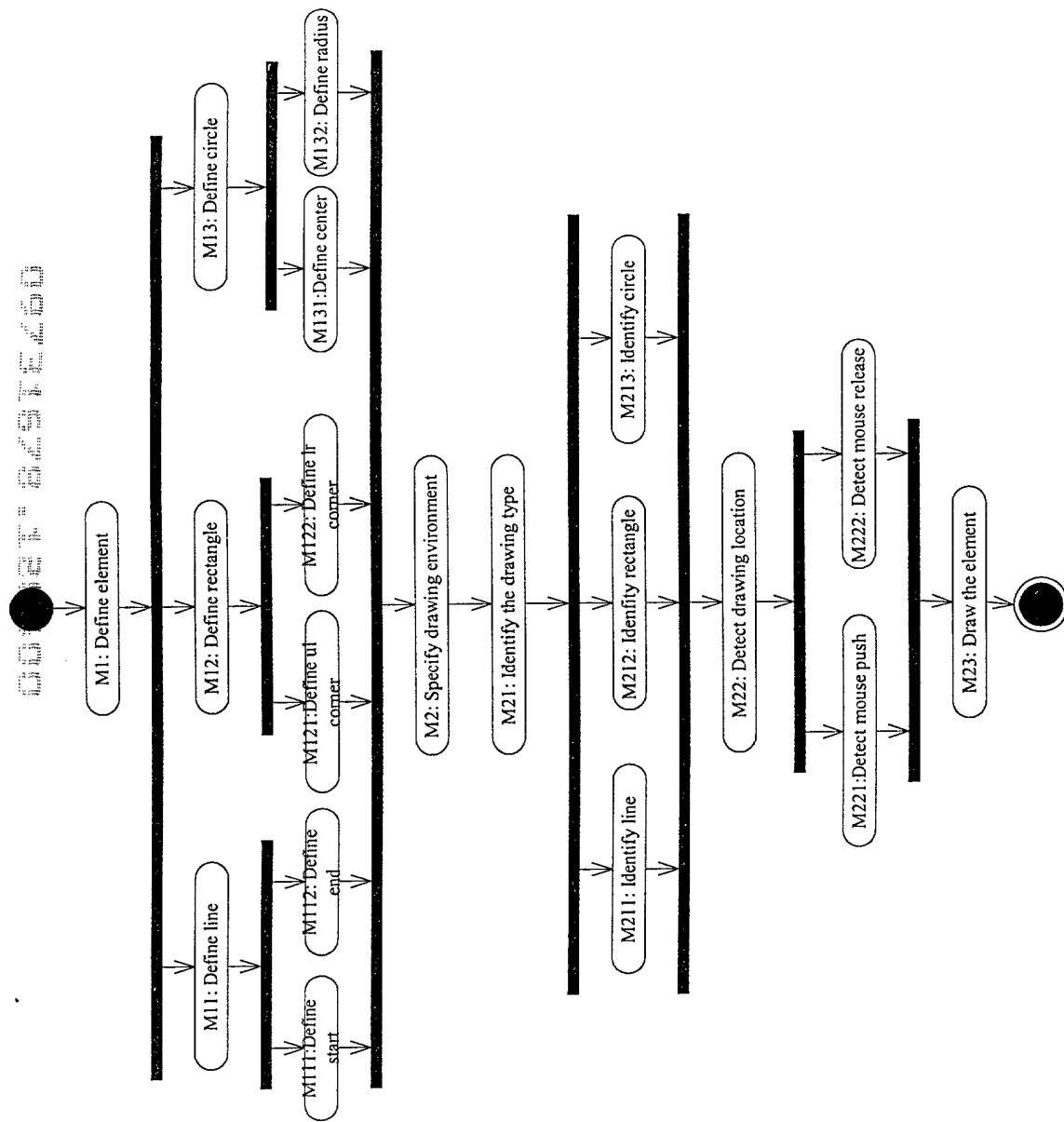


FIGURE 37

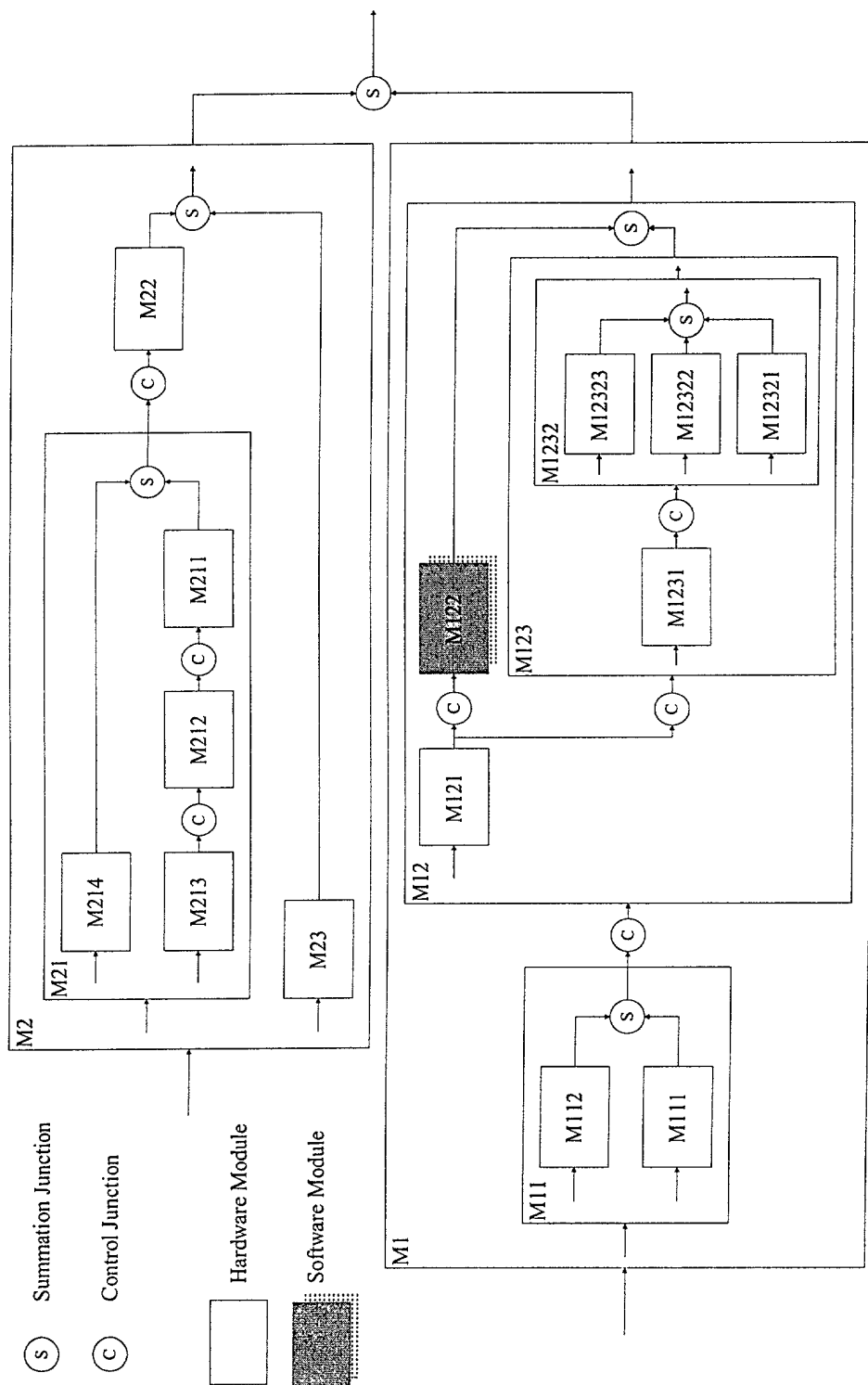


FIGURE 38

(object Petal	
version	40)
(object Design "Logical View"	
is_unit	TRUE
is_loaded	TRUE
file_name	"\$DATA\\demo1.mdl"
quid	"3353F13A0384"
defaults	(object defaults
	rightMargin
	0.250000
	leftMargin
	0.250000
	topMargin
	0.250000
	bottomMargin
	0.500000
	pageOverlap
	0.250000
	clipIconLabels
	TRUE
	autoResize
	TRUE
	snapToGrid
	TRUE
	gridX
	16
	gridY
	16
	defaultFont
	(object Font
	size
	9
	face
	"helvetica"
	bold
	FALSE
	italics
	FALSE
	underline
	FALSE
	strike
	FALSE
	color
	0
	default_color
	(TRUE)
	showMessageNum
	1
	showClassOfObject
	TRUE
notation	"Unified"
root_usecase_package	(object Class_Category "Use Case View"
quid	"3353F13A0386"
exportControl	"Public"
global	TRUE
logical_models	(list unit_reference_list
	(object Class "Student"
	quid
	"3353F162000A"
	documentation
	"Someone who is registered to take classes at the University."
	stereotype
	"Actor")
	.....

FIGURE 39

Code	Parent	Number	Description	Keyword	Comment	Category	Verification	Leaf
EX-a	0	1	Define element	-	-	-	-	FALSE
EX-a	0	2	Specify drawing environment	-	-	-	-	FALSE
EX-a	1	1	Define line element	-	-	-	-	FALSE
EX-a	1	2	Define rectangle element	-	-	-	-	FALSE
EX-a	1	3	Define circle element	-	-	-	-	FALSE
EX-a	1.1	1	Define start	-	-	-	-	TRUE
EX-a	1.1	2	Define end	-	-	-	-	TRUE
EX-a	1.2	1	Define upper left corner	-	-	-	-	TRUE
EX-a	1.2	2	Define lower right corner	-	-	-	-	TRUE
EX-a	1.3	1	Define center	-	-	-	-	TRUE
EX-a	1.3	2	Define radius	-	-	-	-	TRUE
EX-a	2	1	Identify the drawing type	-	-	-	-	FALSE
EX-a	2	2	Detect drawing location	-	-	-	-	FALSE
EX-a	2	3	Draw the element	-	-	-	-	TRUE
EX-a	2.1	1	Identify line	-	-	-	-	TRUE
EX-a	2.1	2	Identify rectangle	-	-	-	-	TRUE
EX-a	2.1	3	Identify circle	-	-	-	-	TRUE
EX-a	2.2	1	Detect mouse push	-	-	-	-	TRUE
EX-a	2.2	2	Detect mouse release	-	-	-	-	TRUE

FIGURE 40

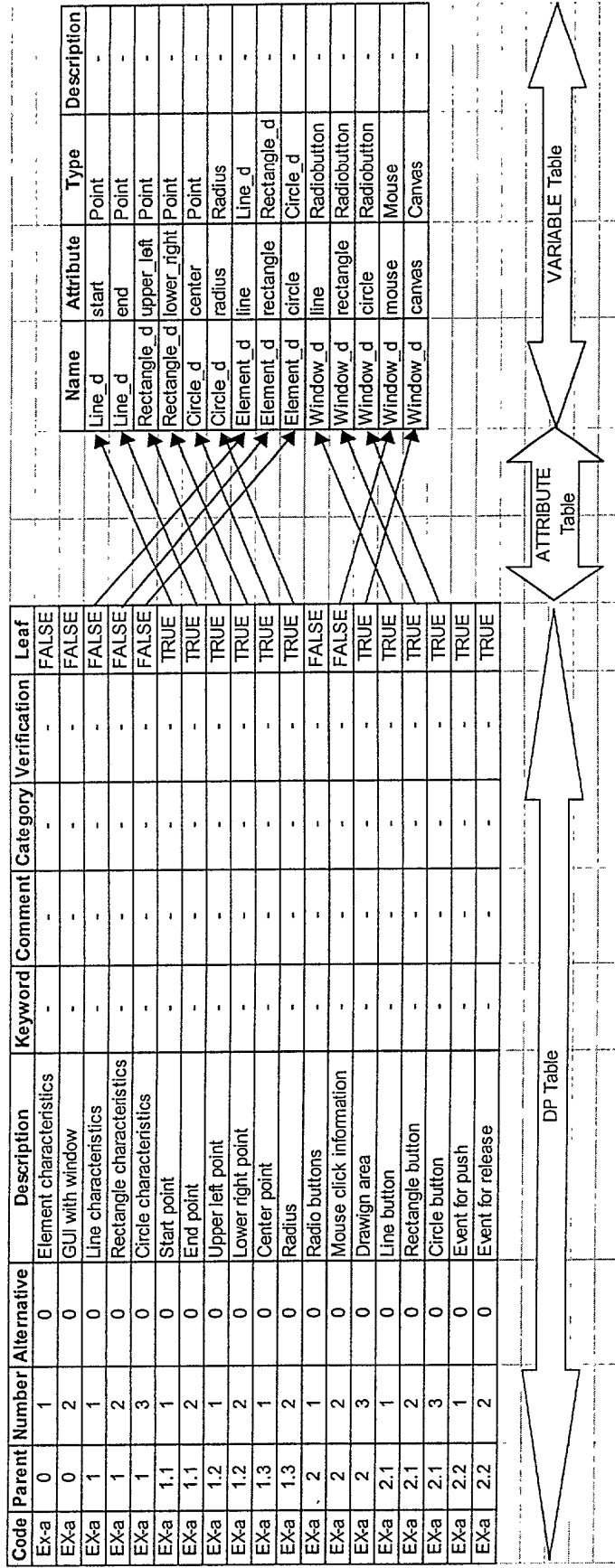


FIGURE 41

Code1	Code2	Value	Comment	Name	Method	Type	Description
Ex-a.0.1	Ex-a.0.1.0	A	-	Line_d	Line_d()	Line_d	-
Ex-a.0.2	Ex-a.0.1.0	a	-	Line_d	setStart()	void	-
Ex-a.0.2	Ex-a.0.2.0	B	-	Line_d	setEnd()	void	-
Ex-a.1.1	Ex-a.1.1.0	C	-	Rectangle_d	Rectangle_d()	Rectangle_d	-
Ex-a.1.2	Ex-a.1.2.0	D	-	Rectangle_d	setULCorner()	void	-
Ex-a.1.3	Ex-a.1.3.0	E	-	Rectangle_d	setLRCorner()	void	-
Ex-a.2.1	Ex-a.2.1.0	F	-	Circle_d	Circle_d()	Circle_d	-
Ex-a.2.2	Ex-a.2.1.0	b	-	Circle_d	setCenter()	void	-
Ex-a.2.2	Ex-a.2.2.0	G	-	Circle_d	setRadius()	void	-
Ex-a.2.3	Ex-a.2.1.0	c	-	Element_d	Element_d()	Element_d	-
Ex-a.2.3	Ex-a.2.3.0	H	-	Window_d	Window_d()	Window_d	-
Ex-a.1.1.1	Ex-a.1.1.1.0	I	-	Window_d	CreateButtons()	void	-
Ex-a.1.1.2	Ex-a.1.1.2.0	J	-	Window_d	addLine()	void	-
Ex-a.1.2.1	Ex-a.1.2.1.0	K	-	Window_d	addRectangle()	void	-
Ex-a.1.2.2	Ex-a.1.2.2.0	L	-	Window_d	addCircle()	void	-
Ex-a.1.3.1	Ex-a.1.3.1.0	M	-	Window_d	MouseListener()	void	-
Ex-a.1.3.2	Ex-a.1.3.2.0	N	-	Window_d	mousePressed()	Point	-
Ex-a.2.1.1	Ex-a.2.1.1.0	O	-	Window_d	mouseReleased()	Point	-
Ex-a.2.1.2	Ex-a.2.1.2.0	P	-	Window_d	draw()	void	-
Ex-a.2.1.3	Ex-a.2.1.3.0	Q	-	Window_d	isLineSelected()	boolean	-
Ex-a.2.2.1	Ex-a.2.2.1.0	R	-	Window_d	isRectangleSelected()	boolean	-
Ex-a.2.2.2	Ex-a.2.2.2.0	S	-	Window_d	isCircleSelected()	boolean	-
Ex-a.2.3	Ex-a.1.1.1.0	x	-	Element_*	Element_*	Element_*	-
Ex-a.2.3	Ex-a.1.1.2.0	x	-	Element_*	getStart()	void	-
Ex-a.2.3	Ex-a.1.2.1.0	x	-	Element_*	getEnd()	void	-
Ex-a.2.3	Ex-a.1.2.2.0	x	-	Element_*	getULCorner()	void	-
Ex-a.2.3	Ex-a.1.3.1.0	x	-	Element_*	getLRCorner()	void	-
Ex-a.2.3	Ex-a.1.3.2.0	x	-	Element_*	getCenter()	void	-
Ex-a.2.2	Ex-a.1.1.0	x	-	Element_*	getRadius()	void	-
Ex-a.2.2	Ex-a.1.2.0	x	-	Element_*	assignLine()	void	-
Ex-a.2.2	Ex-a.1.3.0	x	-	Element_*	assignRectangle()	void	-
Ex-a.2.2	Ex-a.1.3.0	x	-	Element_*	assignCircle()	void	-
DM Table				METHOD Table			
				OPERATION Table			

FIGURE 42

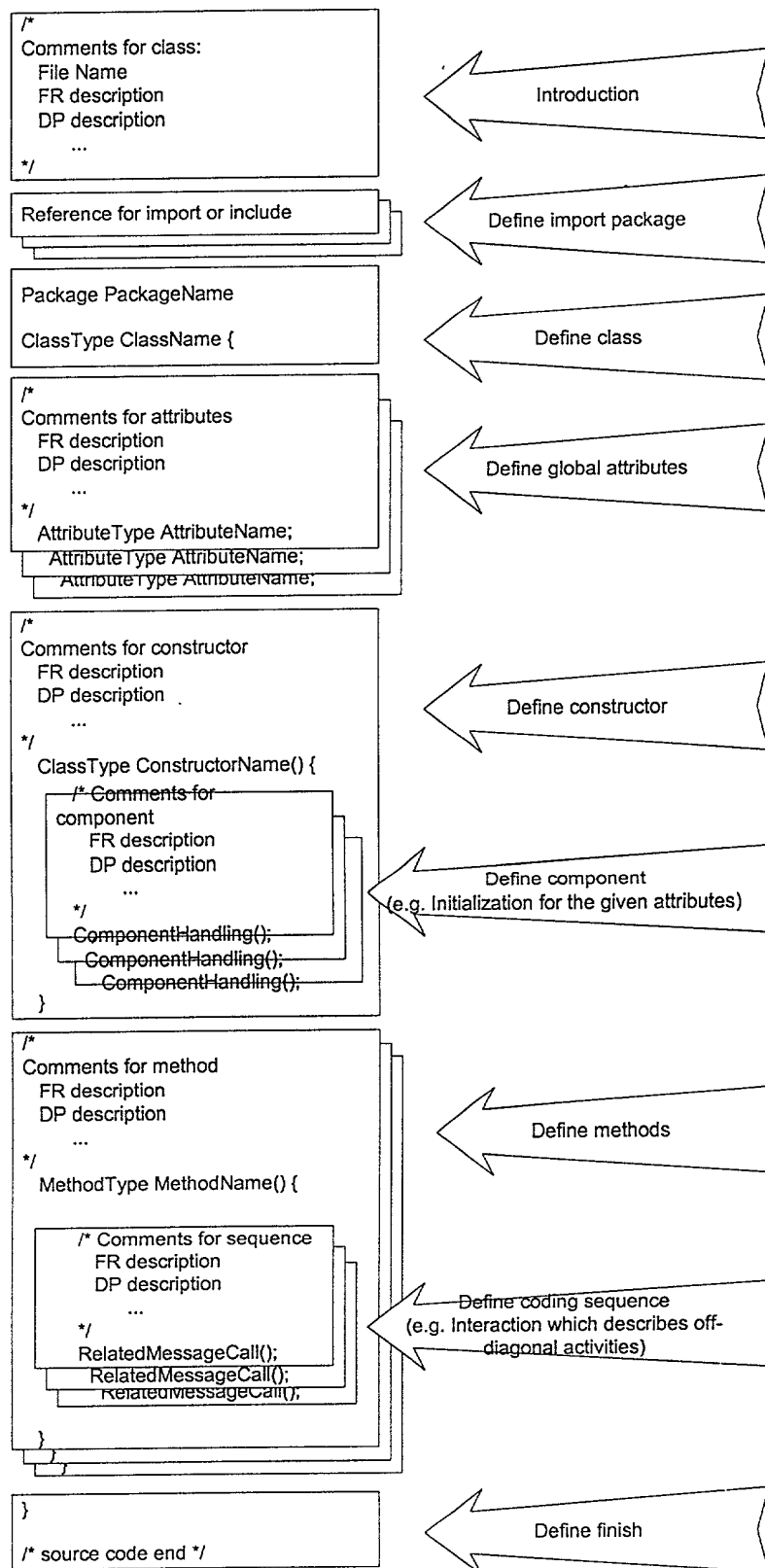


FIGURE 43

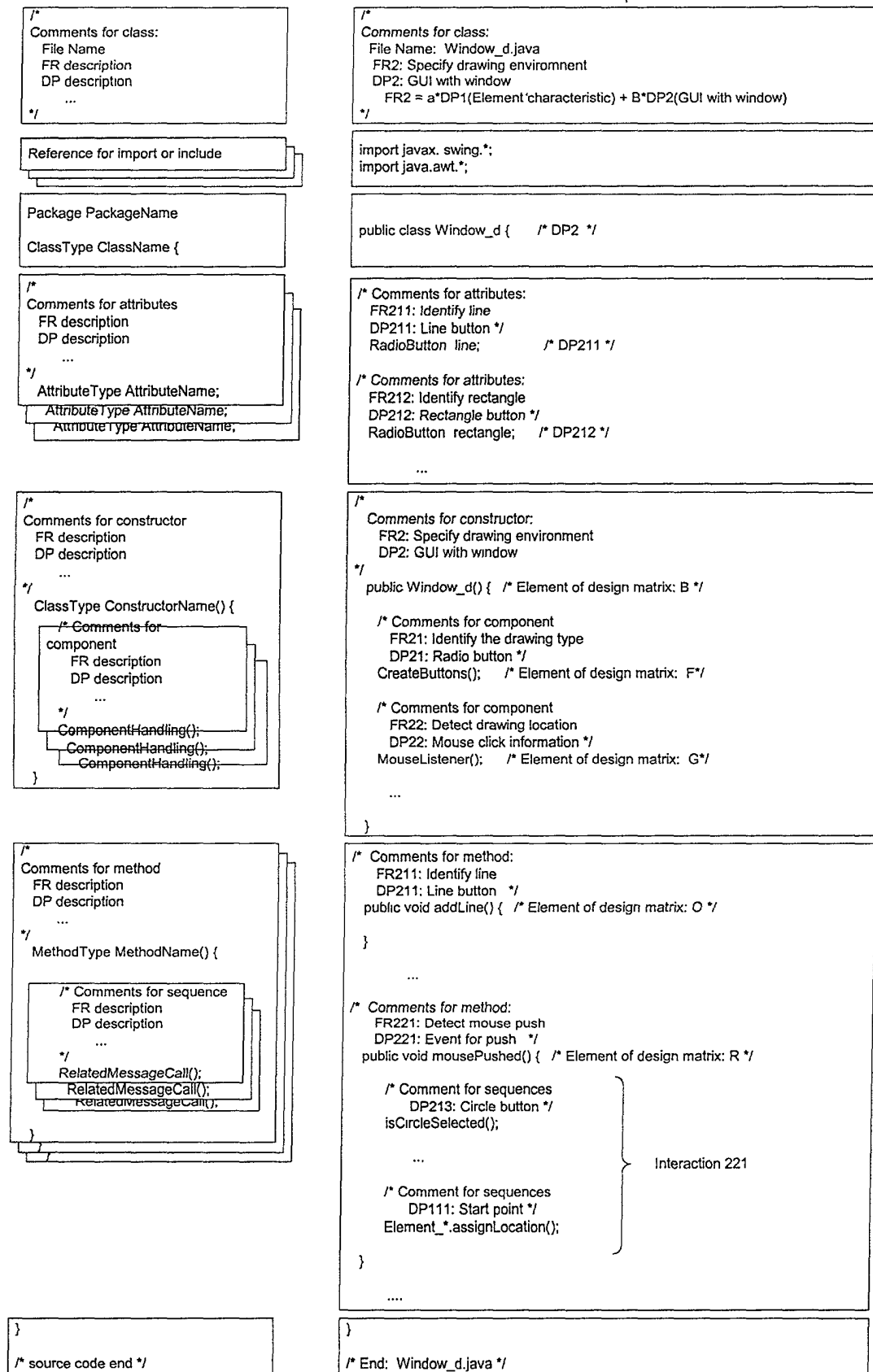


FIGURE 44

FR Information		DP Information	
Number	Description	Num.	Description
FR # 1	Provide security	DP # 1	Login privilege
FR # 2	Assign tasks	DP # 2	Resource of design
FR # 3	Manage schedule	DP # 3	Schedule manage
FR # 4	Construct design n	DP # 4	Data structure for
FR # 5	Facilitate changes	DP # 5	ECO handling tool

FIGURE 45A

	FR	DP
1	FR 1 description ←→	DP 1 description
2	FR 2 description ←→	DP 2 description
3	FR 3 description ←→	DP 3 description

FIGURE 45B

FR Information:		DP Information:	
Number	Description	Number	Description
FR # 1	Control the water fl...	DP # 1	Angle for flow ra
FR # 2	Control the temper...	DP # 2	Angle for temper...
		DP # 2(1)	Controlling ind
		DP # 2(2)	Angle of rod w

FIGURE 46A

	FR	DP
1	FR 1 description	DP 1 description
2	FR 2 description	Alternative DP 2(a)
		Alternative DP 2(b)
		Alternative DP 2(c)
3	FR 3 description	DP 3 description

FIGURE 46B

Parent Information:	
Number	Description
FR 1.1	Manage design workflow
DP 1.1	Management roadmap
FR Information:	
Number	Description
FR # 1	Provide security
FR # 2	Assign tasks
FR # 3	Manage schedule
FR # 4	Construct design h
FR # 5	Facilitate changes
DP Information:	
Number	Description
DP # 1	Login privilege
DP # 2	Resource of de
DP # 3	Schedule mana
DP # 4	Data structure f
DP # 5	ECO handling t

FIGURE 47A

Parent	FR		DP
	Parent FR description	FR 1 description	Parent DP description
1		FR 1 description	DP 1 description
2		FR 2 description	Alternative DP 2(a) Alternative DP 2(b) Alternative DP 2(c)
3		FR 3 description	DP 3 description

FIGURE 47B



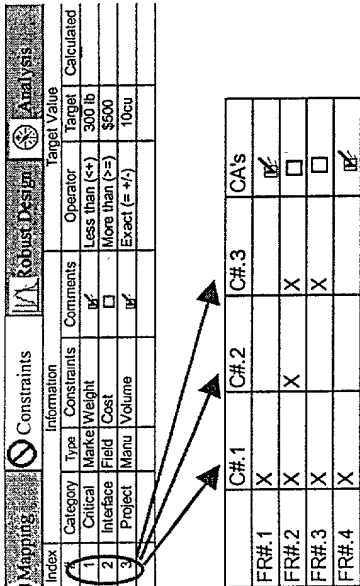


FIGURE 49B

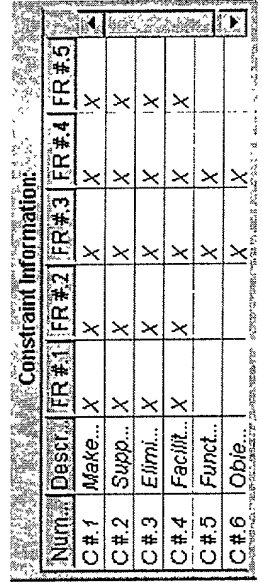


FIGURE 49A

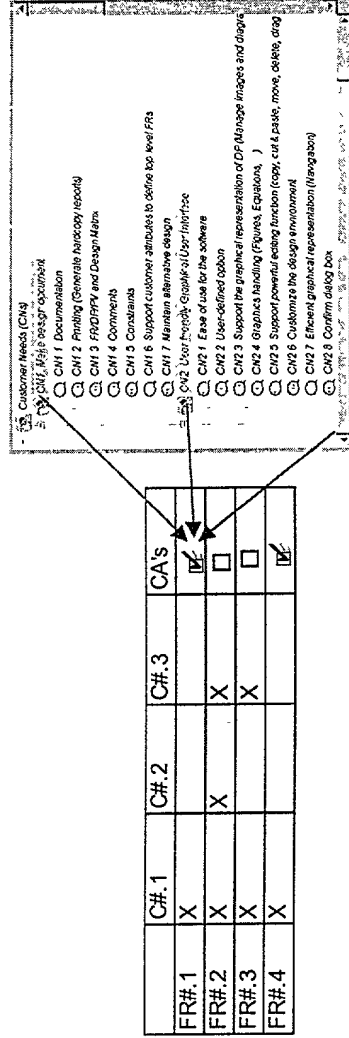


FIGURE 50

Index #	Information			Target Value		
	Category	Type	Constraints	Comments	Operator	Target Calculated
1	Critical	Mark	Weight	<input checked="" type="checkbox"/>	Less than (<+)	300 lb
2	Interface	Field	Cost	<input type="checkbox"/>	More than (>=)	\$500
3	Project	Manu	Volume	<input checked="" type="checkbox"/>	Exact (= +/-)	10cu

FIGURE 51

**Add Functional Requirements**

Please start with VERB for description.

- Data Input
- Support user friendliness of the software
- Support user friendliness of the hardware
- User friendly
- Compatible**

The GUI is one of the most important features of the AD software. The design of the GUI will be discussed later.

OK Cancel Apply Change Delete Insert Append Find in List Find Print Close

FIGURE 52B

Index	Information				Comment	
#	Template	FR	DP		FR	DP
Parent		Control the FR/DP domain	FR/DP window		<input checked="" type="checkbox"/>	<input type="checkbox"/>
1		Control the mapping	Mapping tab		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2		Control the mapping	Domain tab		<input type="checkbox"/>	<input checked="" type="checkbox"/>
3		Assign constraints	Constraints tab		<input type="checkbox"/>	<input type="checkbox"/>
4		Refine the design	Robust design tab		<input checked="" type="checkbox"/>	<input type="checkbox"/>
5		Analyze the design	Analysis tab		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

FIGURE 52C







FIGURE 55A



FIGURE 55B

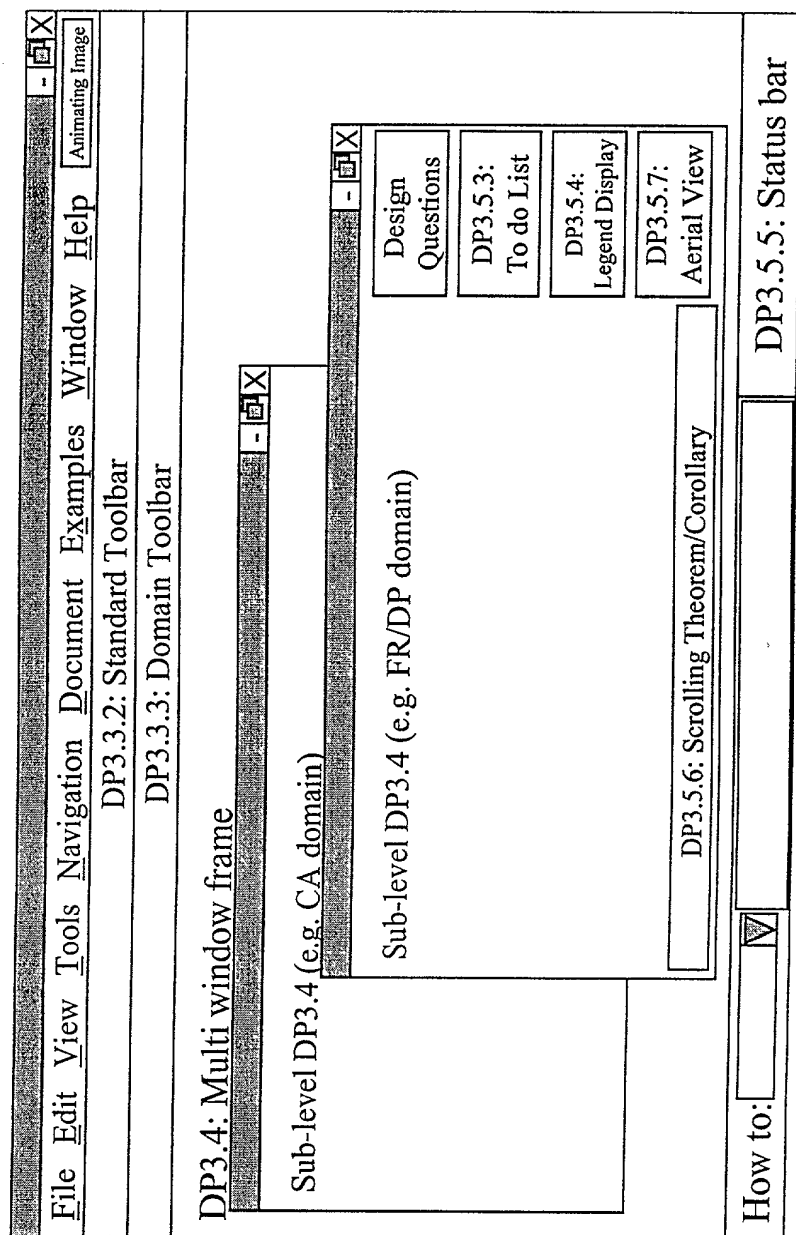


FIGURE 56

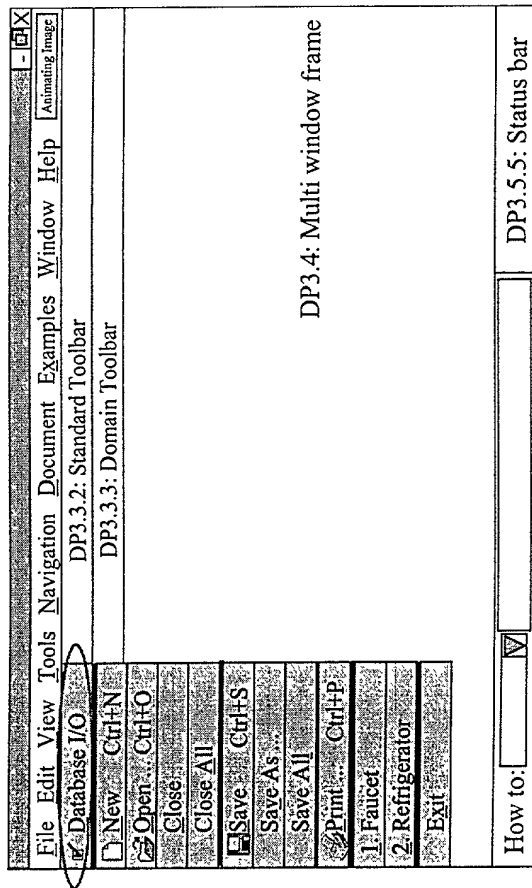


FIGURE 57

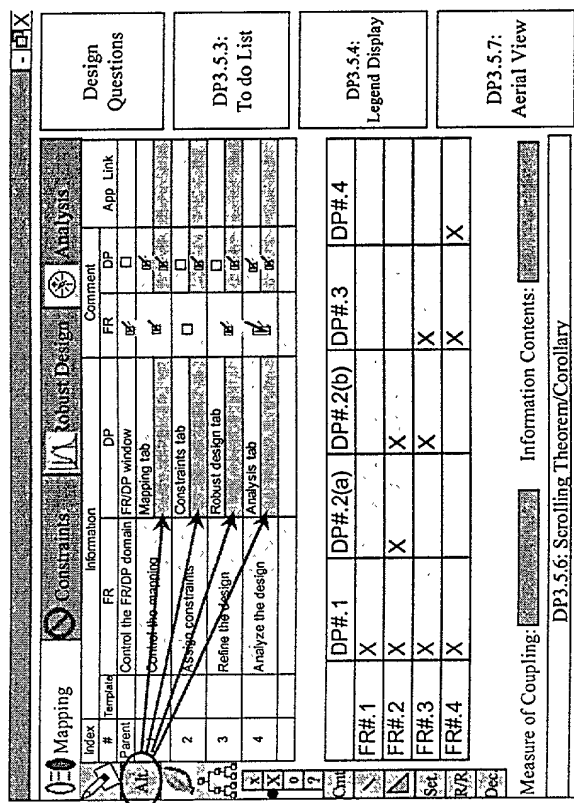


FIGURE 58

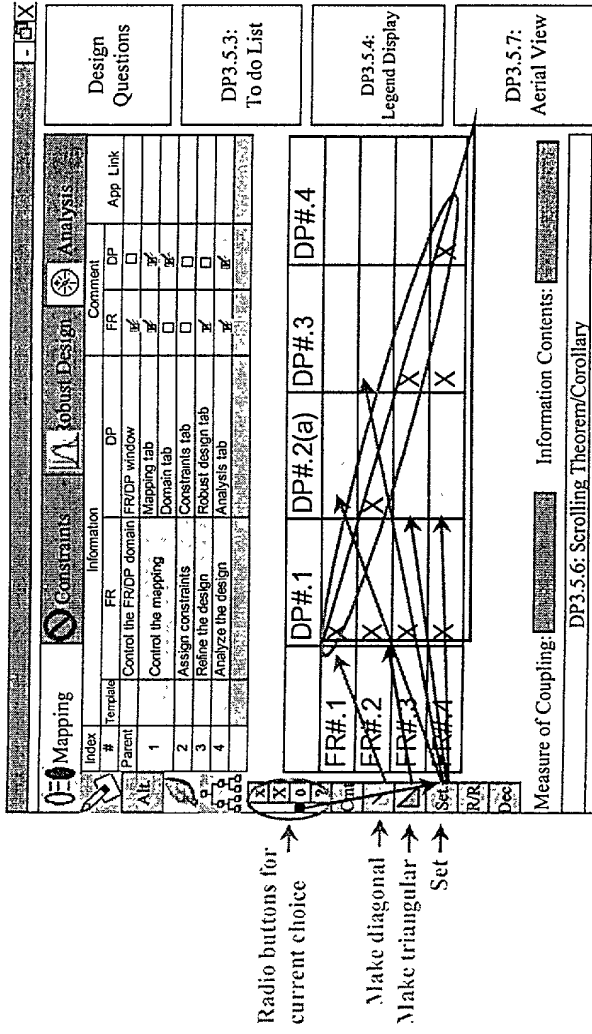


FIGURE 59

Roadmap	Is this step finished?	Resources for control					
		Menu	Tab	Toolbar	Buttons		
					In Mapping tap	In Constraint tab	In Analysis tab
Start the design process	Yes						
	No						
Activities at one level of the design hierarchy	Enable	View -> Project Control	Constraints, Robust design, Analysis	Project Control			
	Disable						
	Enable		Constraints		One step design matrix control buttons		
Define Design Matrix	Disable				Decompose		
	Enable		Analysis		Decompose		Flow Chart, Impact List, Check consistency
	Disable						Flow Chart, Impact List, Check consistency
Activities over the design hierarchy	Enable	View -> Project Control	Robust design	Project Control			Check Constraints, Audit
	Disable						Check Constraints, Audit
	Enable						

FIGURE 60



Mapping		Constraints		Robust Design		Analysis	
Index #	Template	FR	Information	DP	Comment	FR	DP
Parent		Control the FR/DP domain	FR/DP window				
1		Control the mapping	Mapping tab				
2		Assign constraints	Domain tab				
3		Refine the design	Constraints tab				
4		Analyze the design	Robust design tab				
			Analysis tab				

	DP#1	DP#2(a)	DP#2(b)	DP#3	DP#4
FR#1	X				
FR#2	X	X			
FR#3	X		X	X	
FR#4	X			X	X

Measure of Coupling:  Information Contents:

DP3.5.6: Scrolling Theorem/Corollary

Design Questions
DP3.5.3: To do List
DP3.5.4: Legend Display
DP3.5.7: Aerial View

FIGURE 62

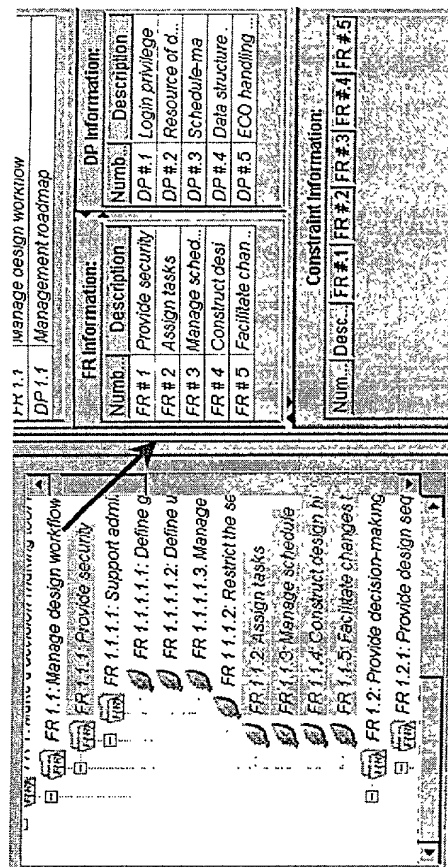


FIGURE 63A

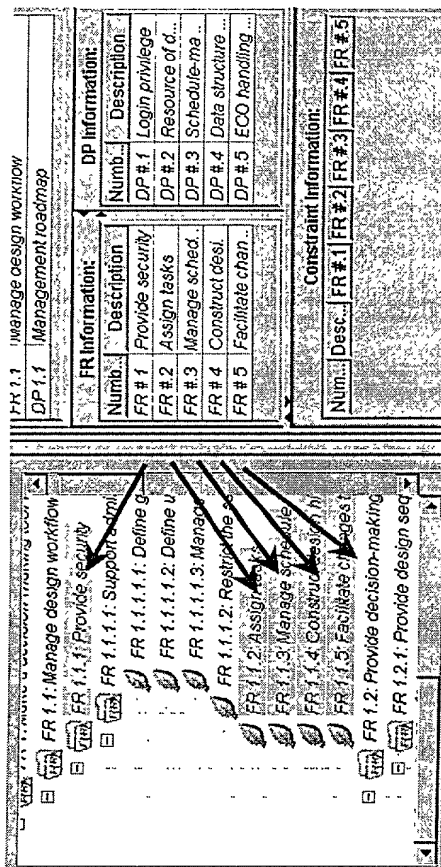


FIGURE 63B



Control Item			Level 1	Level 2	Level 3	Level 4	Level 5
			Beginner		Intermediate		Expert
Available Features	FR/DP Mapping		●	●	●	●	●
	Design Matrix		●	●	●	●	●
	Alternativ DP			●	●	●	●
	Analysis-Flow Chart			●	●	●	●
	Constraints				●	●	●
	Comments				●	●	●
	CN				●	●	●
	CN/FR Mapping				●	●	●
	Analysis-Child List				●	●	●
	Analysis-Impact List				●	●	●
	DP/PV Mapping					●	●
	Analysis-Check Consistency					●	●
	Analysis-Check Constraints					●	●
	Templates					●	●
	Verification					●	●
	Application Link					●	●
	Analysis-Audit						●
	Nested(Full) Matrix Handling						●
	Robust Design						●
	Project Control						●
Automatic Menu Control (Enables the marked item)	File Menu	Database I/O				●	●
	View Menu	CN Domain			●	●	●
		FR/DP Domain	●	●	●	●	●
		DP/PV Domain				●	●
		Nested (Full) Matrix					●
		Project Control					●
	Preference Menu	Display Configuration Manag	●	●	●	●	●
		Numbering		●	●	●	●
		Design Matrix		●	●	●	●
		Display Color		●	●	●	●
		Design Matrix Color	●	●	●	●	●
		GUI Display			●	●	●
		File Location				●	●
		Resource				●	●
		Database I/O				●	●
		Templates				●	●
		Constraints				●	●
		Verifications				●	●
	Document Menu	PV Tree Diagram				●	●
		Nested(Full) Matrix					●
Automatic Window Control (Displays the marked item)	FR/DP Window	No Tab	●				
		Mapping Tab		●	●	●	●
		Constraints Tab			●	●	●
		Robust Design Tab					●
		Analysis Tab		●	●	●	●
					●	●	●
					●	●	●
						●	●
						●	●
						●	●
		CN Window			●	●	●
		DP/PV Window				●	●
		Project Control Window					●
		Nested (Full) Design Matrix Window					●

FIGURE 65



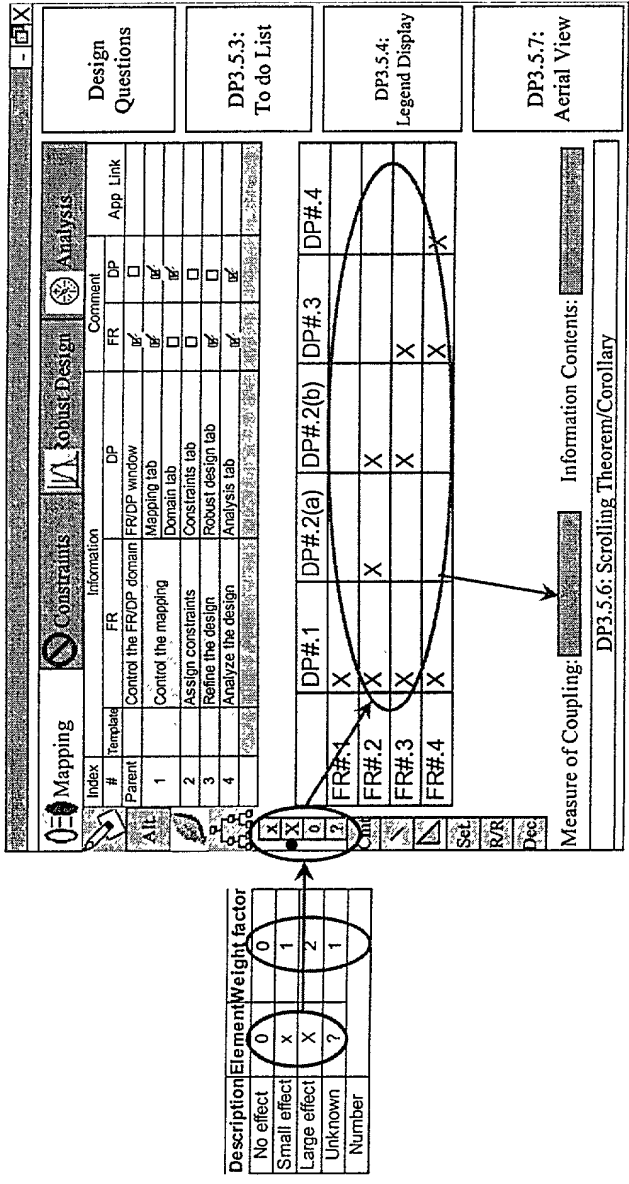


FIGURE 67

		Legend category		
		Color	Font	Line
Display	Activated cell			N/A
	Normal			
	Default			N/A
	Focus			N/A
	Alternative			N/A
	Redundant			N/A
	Constraints			N/A
	Comments			N/A
Design Matrix	Uncoupled		N/A	
	Decoupled		N/A	
	Coupled		N/A	
	Undefined		N/A	
Template	Process			—
	Transport			---
	...			

FIGURE 68

009027 6237660

		H e l p	
FR:53DP:53	Academic User	dshee	Wed 1/26/2000

FIGURE 69

Mapping		Constraints	Robust Design	Analysis	Design Questions
<ul style="list-style-type: none"><li>• What is the functions that the system / product should perform?</li><li>• How do you achieve these functions?</li><li>• Do you think this set of FRs is minimum set to fulfill the parent level requirements?</li><li>• Does changing this DP affect the FR?</li><li>• Does the choice of this DP affect that FR?</li><li>• Can the DP be designed without affecting the FR?</li><li>• ...</li></ul>					
FR# 2	X	X	X		DP3.5.3: To do List
FR# 3	X		X		
FR# 4	X		X	X	
					DP3.5.4: Legend Display
					DP3.5.7: Aerial View
Measure of Coupling: [ ]					
Information Content: [ ]					
DP3.5.6: Scrolling Theorem/Corollary					

FIGURE 70

FIGURE 71



Child List	Impact List	Inconsistency	Decoupling
Number	FR Description		DP Description
1.1	Manage design workflow		Management roadmap
1.1.1	Provide security		Login privilege
1.1.2	Assign tasks		Resource of design activity
1.1.3	Manage schedule		Schedule-managing tool (e.g. MS Project)
1.1.4	Construct design hierarchy		Data structure for Axiomatic Design concept
1.1.5	Facilitate changes to the design		ECO handling tool
1.1.1.1	Support administrative tool		User manager
1.1.1.2	Restrict the security access level		Authority code
1.1.1.1.1	Define group		Group specification
1.1.1.1.2	Define user		User specification
1.1.1.1.3	Manage authority code		Authority code specification

FIGURE 73

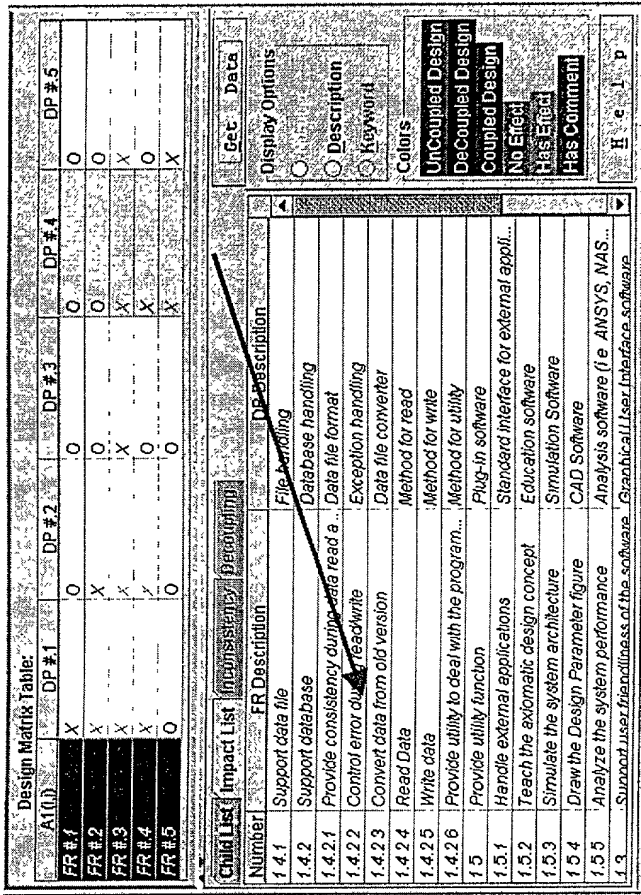


FIGURE 74

Design Matrix Table:

FR #	DP #1	DP #2	DP #3	DP #4	DP #5	DP #6
FR #1	X	O	O	O	O	O
FR #2	O	X	O	O	O	O
FR #3	X	X	X	X	O	X
FR #4	X	X	O	X	O	X
FR #5	X	X	O	O	X	X
FR #6	O	O	O	O	O	X

Flowchart:

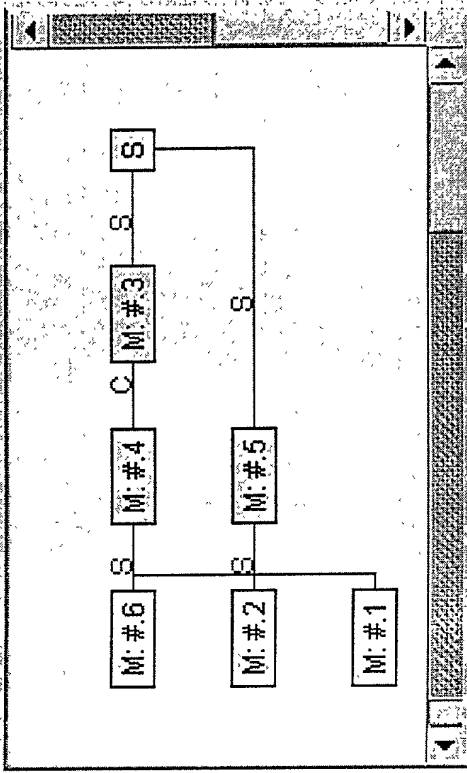


FIGURE 75



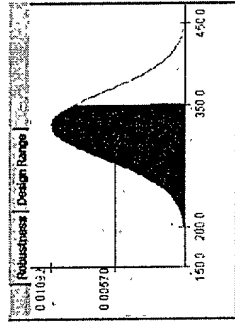


FIGURE 77A

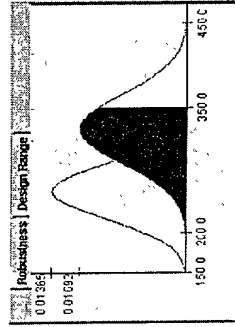


FIGURE 77B

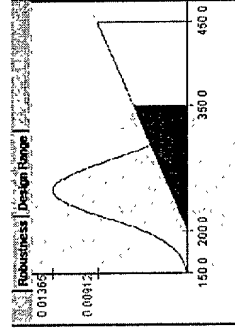


FIGURE 77C

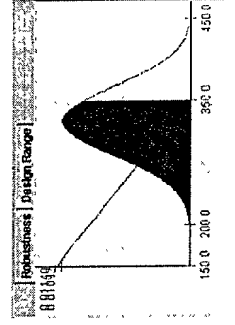


FIGURE 77D



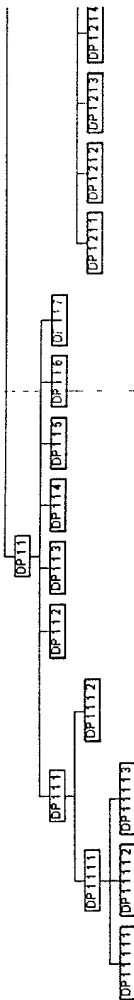
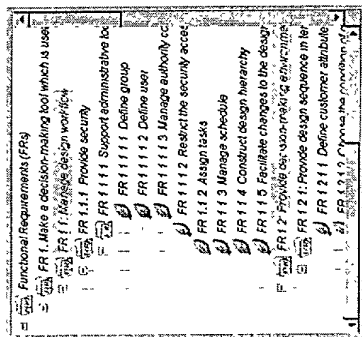


FIGURE 79B

FIGURE 79A

0 Mapping						Constraints		Robust Design		Analysis		Design Questions	
		DP#1	DP#2(a)	DP#2(b)	DP#3	DP#4							
FR#1	X												
FR#2	X	X											
FR#3	X			X									
FR#4	X				X								
<p><b>Check my design:</b></p> <ul style="list-style-type: none"> <li>- Is the design completely uncoupled/decoupled?</li> <li>- Does it satisfy Constraints?</li> <li>- Does each leaf DP have a drawing?</li> <li>- Are there any unchecked CN's?</li> <li>- Has everybody done consistency check?</li> <li>- Does the default design have the least information?</li> <li>- Are all the leaf nodes checked as leaf?</li> <li>- ...</li> </ul>							DP3.5.3: To do List						
<p><b>Flow Chart</b></p>							3.5.4: Display						
<p><b>Child List</b></p>													
<p><b>Impact List</b></p>													
<p><b>Check Consistency</b></p>													
<p><b>Check Constraints</b></p>							3.5.7: View						
<p><b>Audit</b></p>													
DP3.5.6: Scrolling Theorem/Corollary													

FIGURE 80

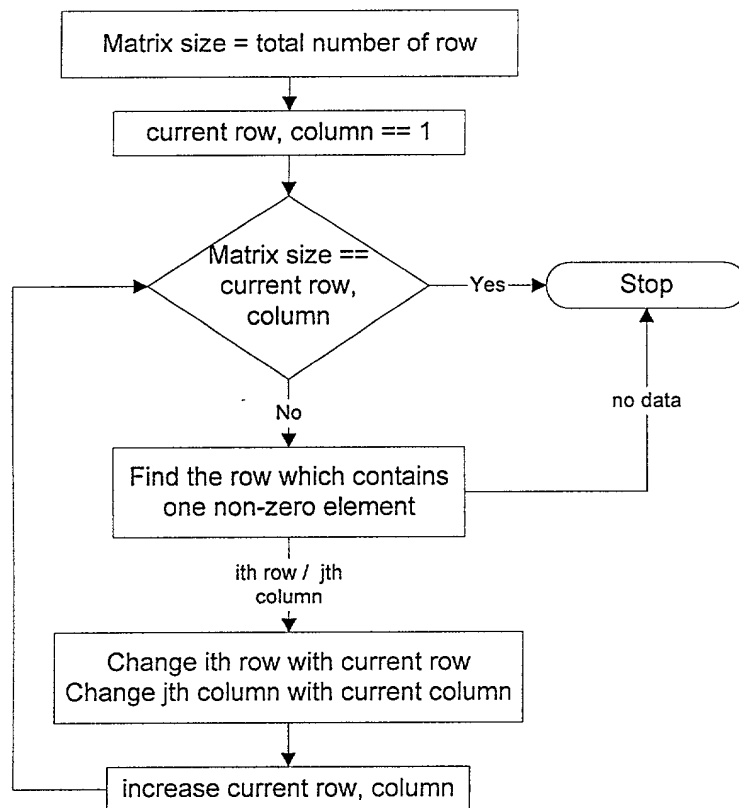


FIGURE 81

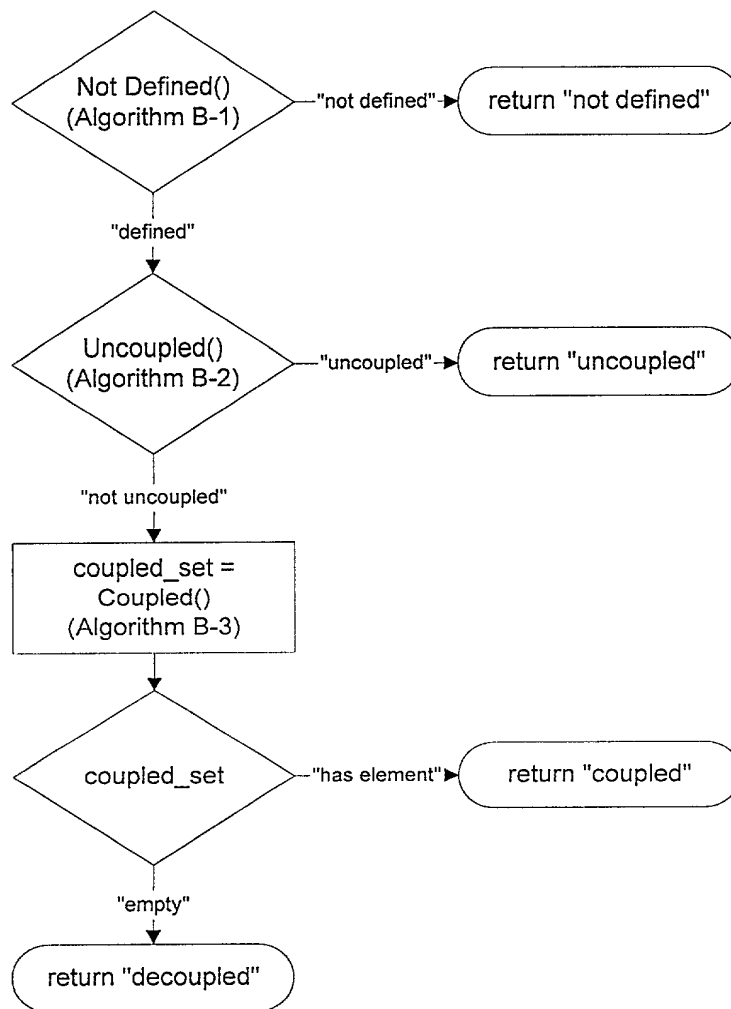


FIGURE 82

Loop One (int row=0; row<total\_row\_number; row++) {  
 Loop Two (int column=0; column <total\_column\_number; column++) {  
 If(maxtrix[row][column] == "empty")  
 return "not defined"  
  
 If(row == column) {  
 If(matrix[row][column] == "0")  
 return "not defined"  
 }  
 }  
}  
  
return "defined"

If one of the diagonal  
element has "0", the  
design is not defined in  
terms of the axiomatic  
design viewpoint

FIGURE 83

```
Loop One (int row=0; row<total_row_number; row++) {  
  Loop Two (int column=0; column <total_column_number; column++) {  
    If(row != column) {  
      If(matrix[row][column] == "X")  
        return "not uncoupled"  
    }  
  }  
}  
  
return "uncoupled"
```

FIGURE 84

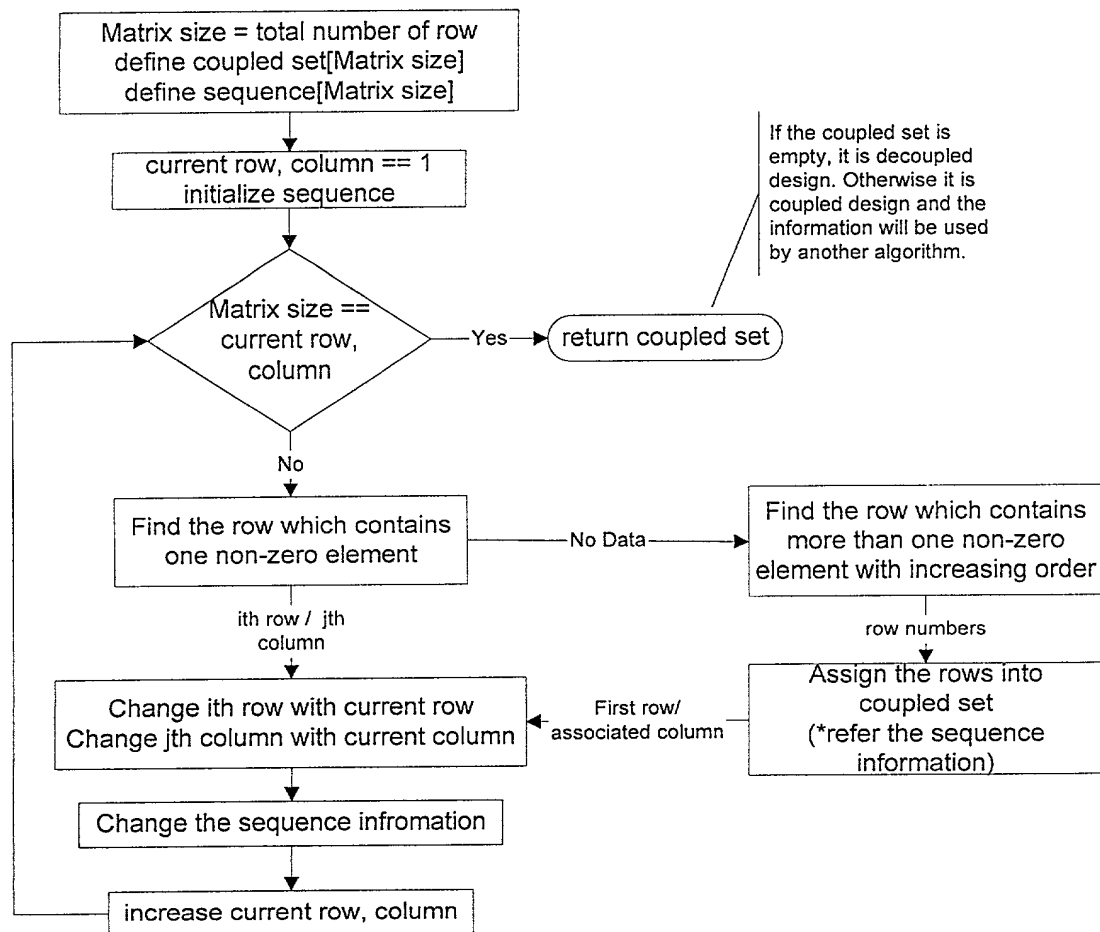


FIGURE 85

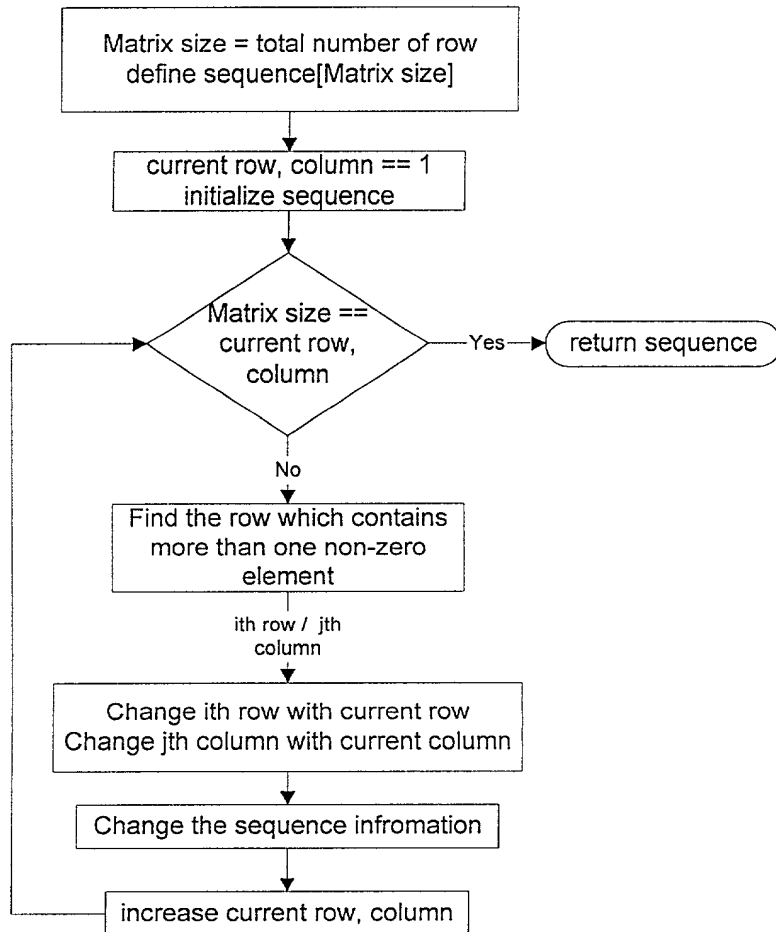


FIGURE 86

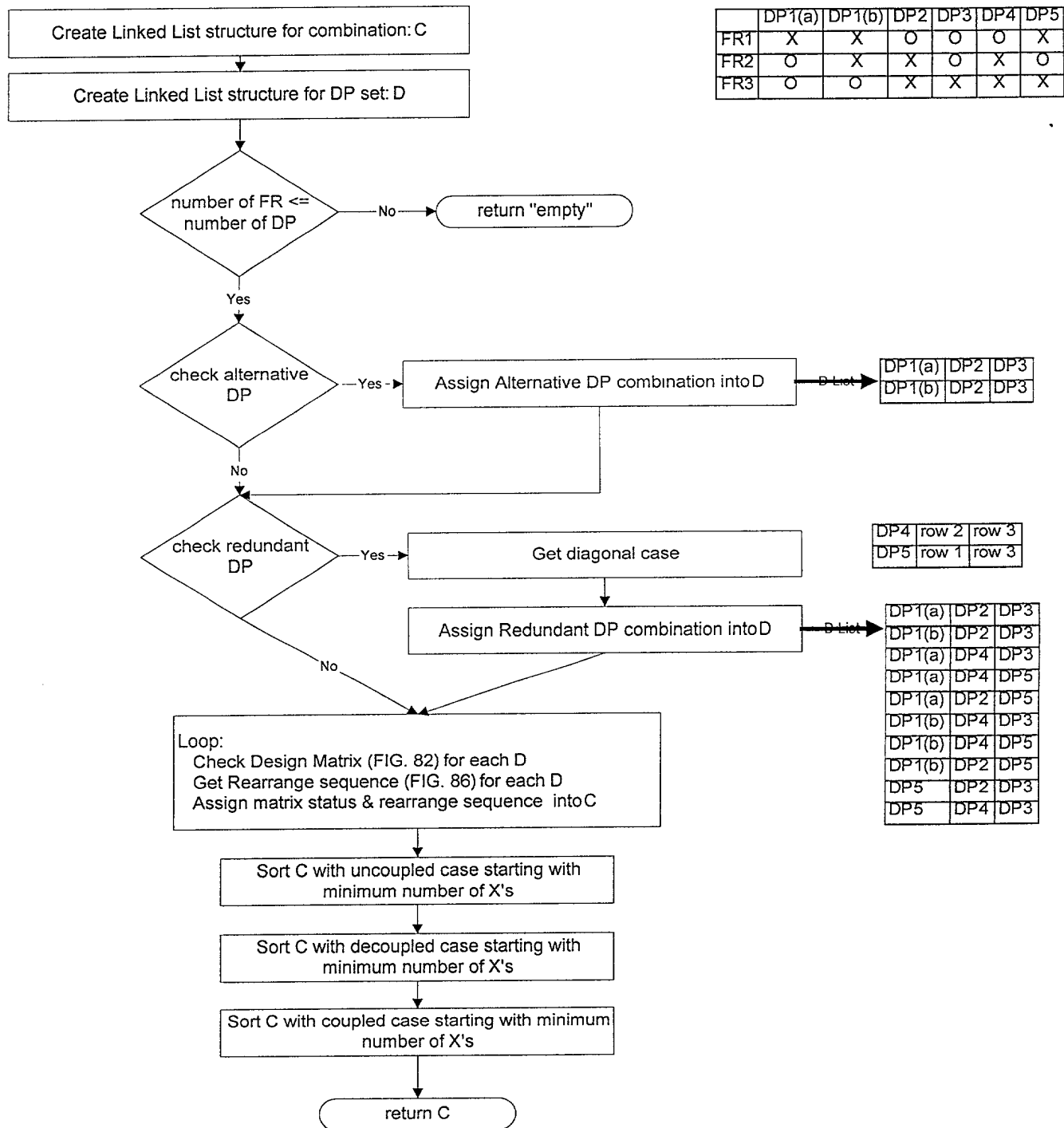


FIGURE 87

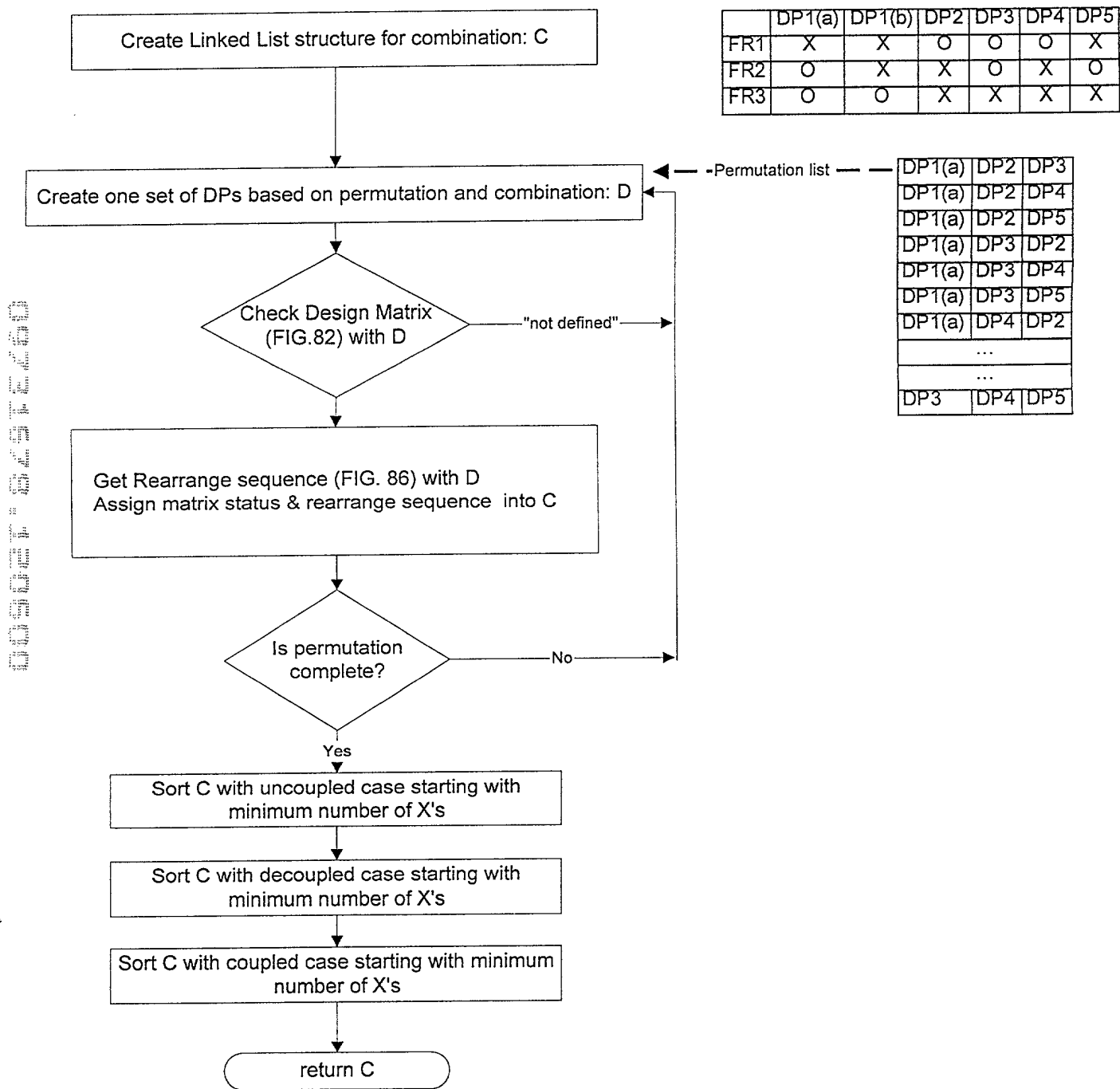


FIGURE 88

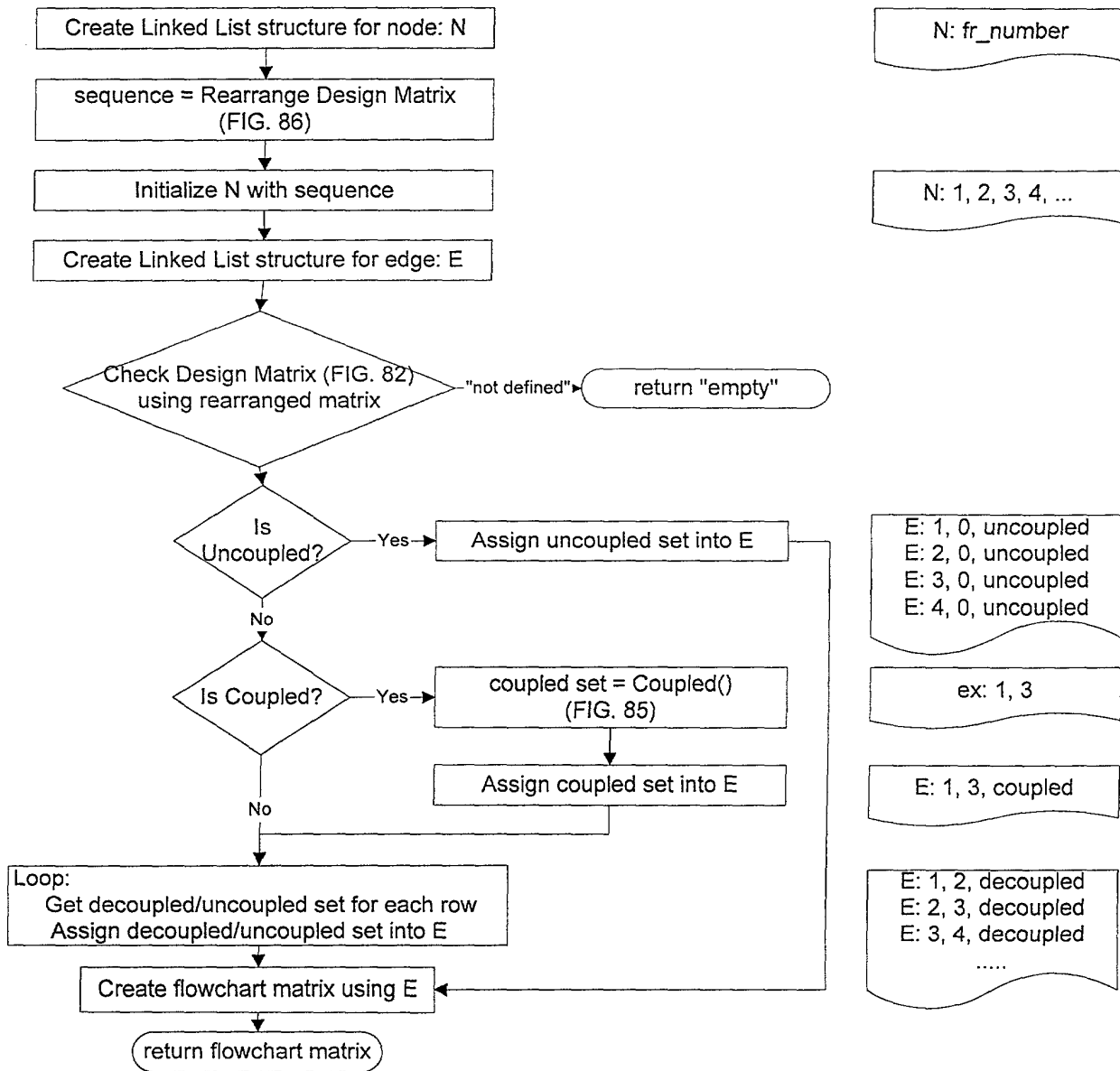


FIGURE 89

	DP1	DP2	DP3
FR1	X	O	O
FR2	O	X	O
FR3	O	X	X

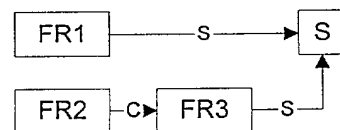
Design matrix

E1: 1, 0, uncoupled  
E2: 2, 0, uncoupled  
E3: 2, 3, decoupled

Edge List

1S		
2S	3C	

Flowchart matrix



Flowchart  
(System Architecture)

FIGURE 90

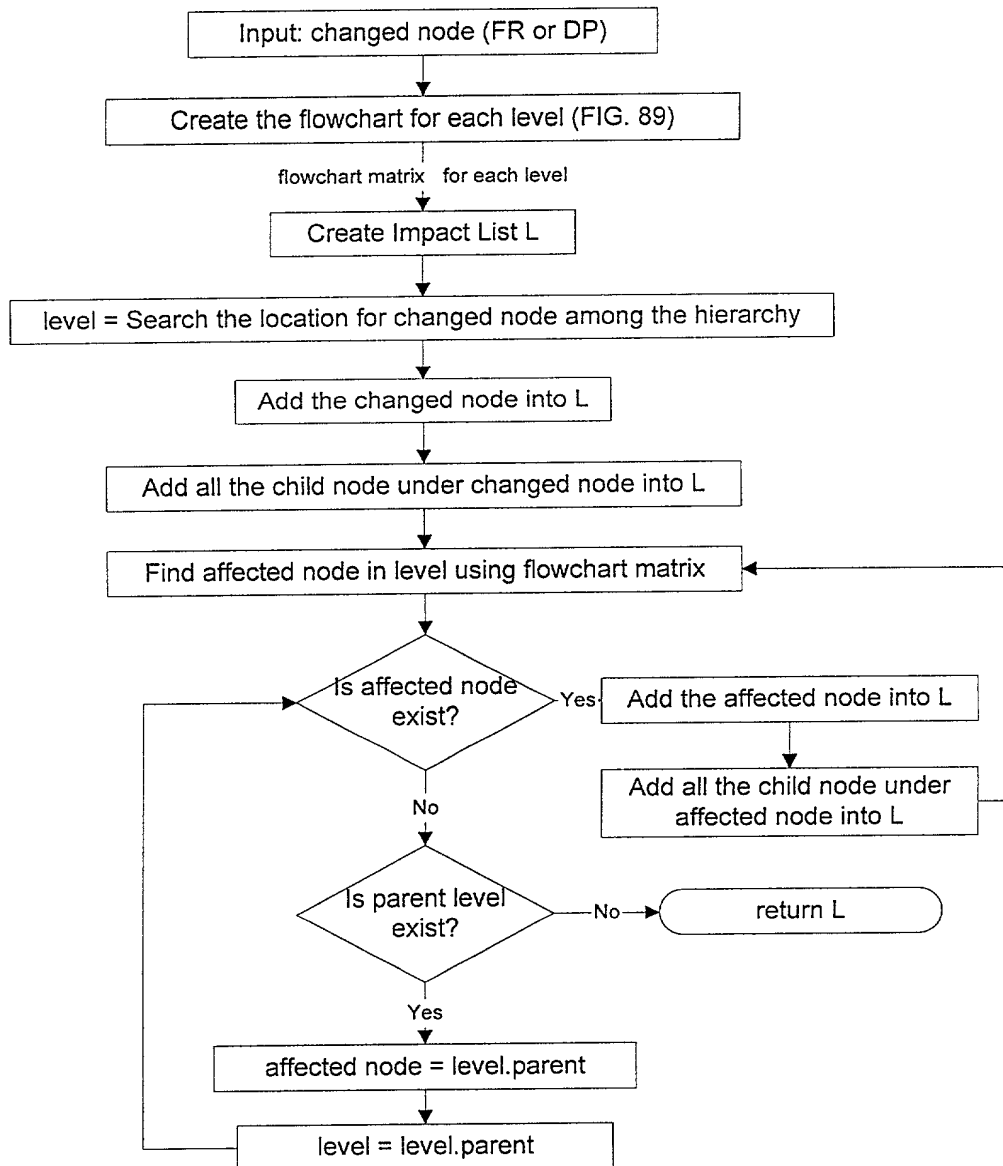


FIGURE 91

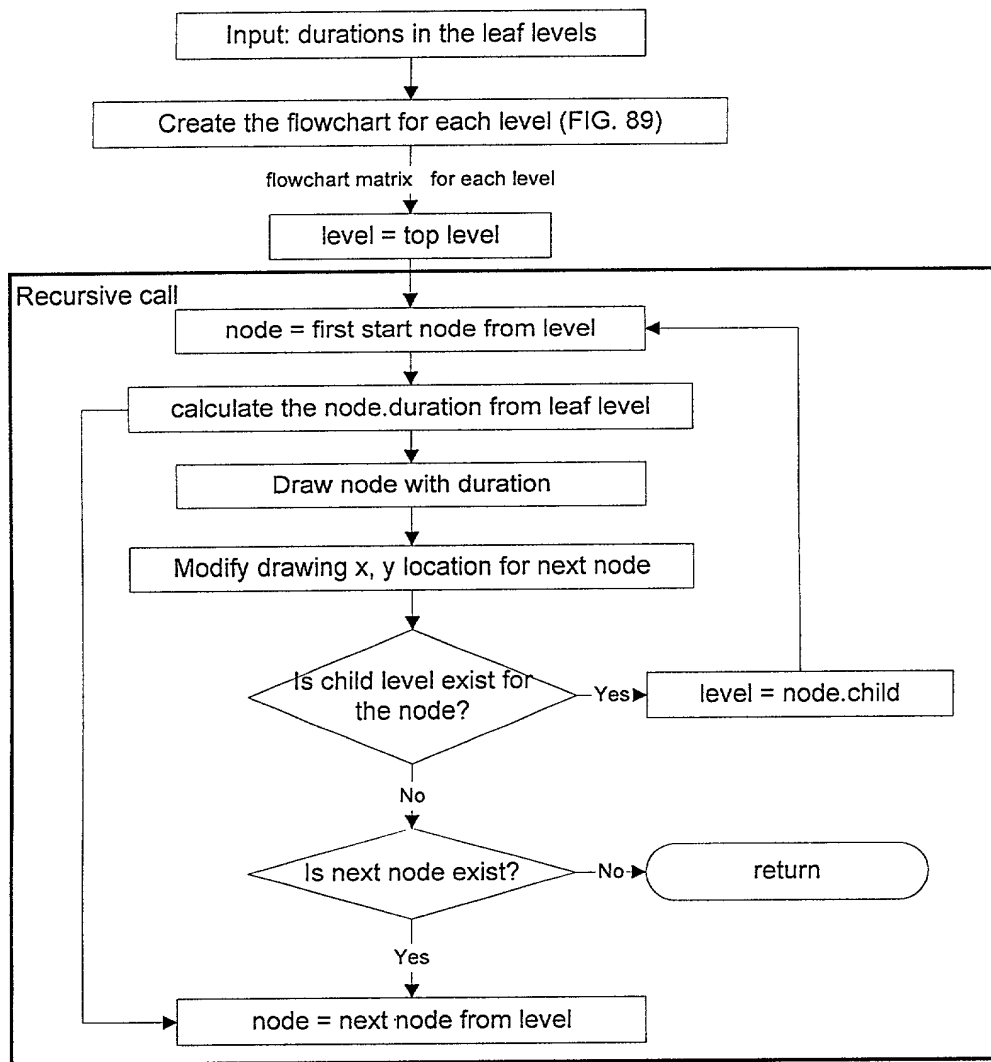


FIGURE 92